

DOS WORLD

The Essential Guide to DOS and Windows

January 1996 • Number 25

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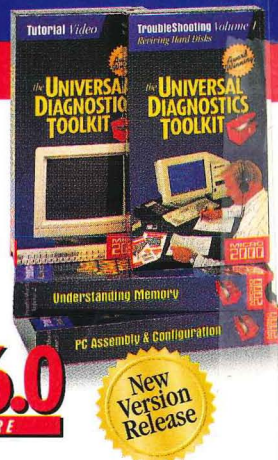
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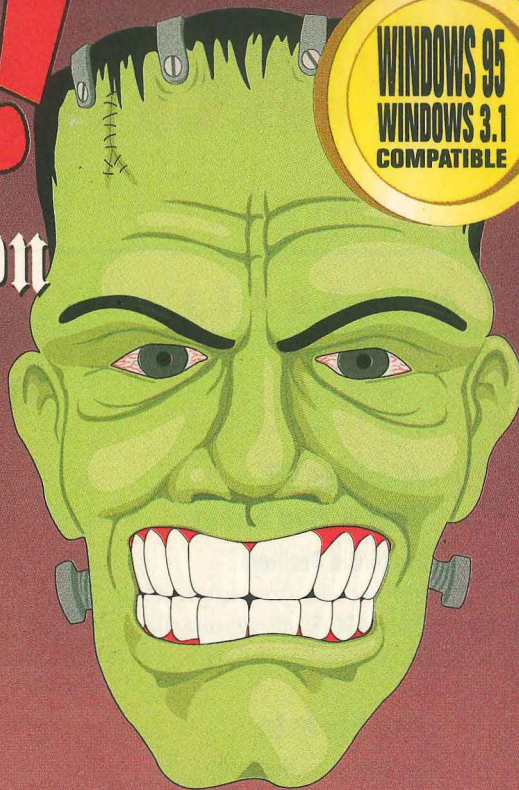
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NEW!

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On the Cover

Pictured on the cover is Compaq's Deskpro 5100, featuring a 100MHz Pentium processor, standard 8MB RAM (upgradable to 192MB) and 630MB hard drive. Color monitor shown is the QVision 172. For more information, visit the Compaq Web site at <http://www.compaq.com>.
Cover photo by Larry Dunn.

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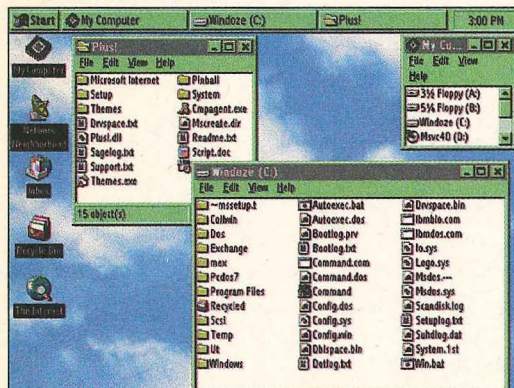
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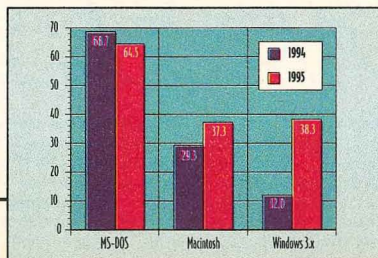
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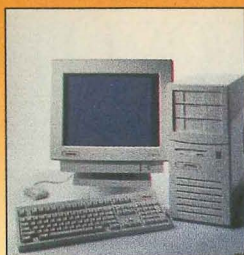
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DOS WORLD

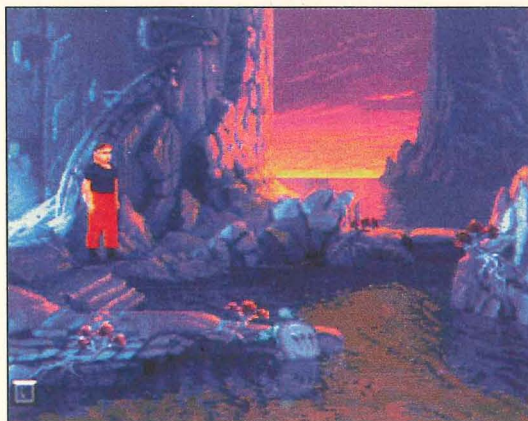
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How to Contact The Editors

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DW makes every effort to verify its articles and programs, but the magazine assumes no responsibility for any damages because of errors or omissions in our articles. Corrections to listings or articles are printed as soon as possible.

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EDITORIAL

Name That DOS

by Michael J. Comendul

Okay, okay—I admit it. I might have been hasty. What would *you* call it? Some readers—and contributors—criticized our nomenclature for the version of Microsoft DOS within Windows 95. We called it MS-DOS 7 in our last issue. (We weaseled a little by putting the phrase between quotation marks.) Some people thought it laughable that we raised what they call a “revision” to the status of “new version.”

Well, the truth is, the editors wrestled with this question before I blundered into what may have been the wrong answer. The magazine adopted the name trade-press reporters were using for this “different” DOS and introduced it in the November 1995 issue in the article “Inside ‘DOS 7’” (page 26). But is this a DOS you might compare with the departed Novell DOS 7 or IBM’s PC DOS 7?

Calling it MS-DOS 7 isn’t unrealistic. Dan Gookin, one of our frequent contributors, called me during the early “beta” stages of working with Win95. He told me that his version bombed for some reason halfway through the installation. (Don’t panic—we’re talking *really* early in the beta cycle.) In one ill-fated attempt to recover, he tried to reboot from an MS-DOS floppy only to receive the message that he had the wrong DOS version. The computer asked him for version 7. Since then, that nomenclature has disappeared. Microsoft certainly hasn’t called it MS-DOS 7.0 publicly. In fact, it has asserted that you no longer need MS-DOS to load and run Windows 95—arguably true, but not the same as saying that DOS doesn’t exist.

References to DOS and icons for it are found throughout Windows 95. (There’s no fooling an observant guy like me.) And what is Microsoft calling this DOS that is internal to Windows 95? If you type VER from the command line in the DOS box, you’ll see “Windows 95. Version 4.0.950.” No mention of DOS. (By the way, Contributing Editor Rob Hummel takes this to mean that Windows 95, for all the hoopla surrounding it, was never meant to be anything but “Windows 4.0”—a revision of 3.1.)

But, under the skin, what is the DOS inside Win95? Well, in the past, Microsoft has used the time stamp for the creation of its files to echo the version number of its product. Our files in the Windows 95 DOS directory read 6:20a, and so do the files in our older machines running 6.2.

Old DOS or new, there are undeniable changes. But is this DOS a new version? It offers new commands, new switches, and transformations of commands you know. Also, as we reported last issue, DOS behaves differently in certain “modes.” For example, the DOS box in Windows can read long filenames (even in the DOS directory), but what I’ll call “native” DOS—which you can get to most easily by holding down F8 when the message “Starting Windows 95” appears at boot-up—can’t. In this mode, switch to your DOS directory, run the DIR command, and you’ll see a list of files, but only their short eight-character filenames and extensions.

We’ll keep hunting for distinctions, but we’ll watch our nomenclature in the future. How’s this? Author Stan Miaskowski, assigned to our next *DOS World* special on Windows 95 (on sale in February), calls it DOS 95. Now, why didn’t I think of that? ■

DOS WORLD

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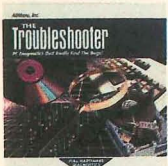
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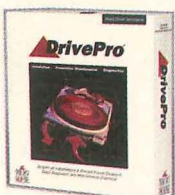
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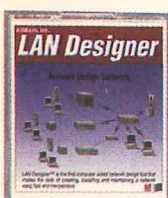
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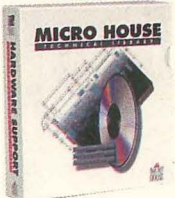
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DR

Letters to the Editor

The Net Effect

As a relative newcomer to the world of computing, I'd like to express my appreciation of your magazine. I particularly enjoyed "Symbolic Victory: Batch-File Basics" [*DOS World* #22, July 1995, page 35, and #23, September 1995, page 37].

I'm surprised you don't have a regular Internet address. Like most people, I don't belong to Compu-

Serve, and I had difficulty finding someone who knew how to contact you there.

B. Calder
Fair Haven, New Brunswick
Canada

Although we don't have an Internet address yet, you can reach us on CompuServe from the Internet by using the address 75300.2357 @compuserve.com.

*Our sister publication, I*Way, is up and running on the Internet, and we hope to set up an Internet mailbox in the coming months. We'll keep you posted.*

—Eds.

This revised version of PURGE.BAT deletes files so that snoops can't use the UNDELETE command to recover them.

```
@ECHO OFF
IF "%1"=="GETRIDOFIT" GOTO GETRIDOFIT
IF "%1"==" " GOTO HELP
CLS
SET VAR=%0
ECHO ---[ WARNING! WARNING WARNING! ]---
ECHO %0 will permanently delete the following files:
ECHO %1 %2 %3 %4 %5 %6 %7 %8 %9
ECHO.
ECHO After you run this program, these files will
ECHO be gone forever. UNDELETE won't be able to
ECHO retrieve them.
ECHO.
ECHO Press Ctrl+C now to end this job; otherwise,
PAUSE
:KILLALL
FOR %A IN (%1) DO CALL %VAR% GETRIDOFIT %A
SHIFT
IF "%1"==" " SET VAR=
IF "%1"==" " GOTO END
GOTO KILLALL
:HELP
ECHO %0 ensures that deleted files stay deleted.
ECHO Wildcards are allowed.
ECHO For example:
ECHO PURGE TEST?.PRG CUSTOMER.021 *.BAK
GOTO END
:GETRIDOFIT
ECHO File purged!>%2
DEL %2
ECHO %2 Purged
:END
```

End

Fail Not Safe

In "Mistakes, Magic Keys, and Memory Fixes" ["Start-Up Clinic," *DOS World* #23, September 1995, page 55], Jack Nimersheim advises Michael Lasko on how to deal with an "Abort, Retry, Fail" message. His fix is to press Ctrl+C to return to the command-line prompt.

Nimersheim doesn't mention, however, that you can avoid this sort of trouble by adding a /F switch to the SHELL command in CONFIG.SYS. /F should be the last switch on the line:

```
SHELL=C:\DOS\COMMAND.COM C:\DOS
/E:1024 /P /F
```

Austin Billups
Internet

Adding a /F switch to the SHELL command tells DOS to choose the Fail response whenever a circumstance arises that would trigger the "Abort, Retry, Fail" message. It's meant for use on machines that operate unattended for long periods of time, such as those running electronic bulletin boards.

Because programs react differently when you choose the Fail option, it's not safe to use this switch on a personal computer. If you use it, you could, for example, lose an update to a database or word-processing document simply because your printer runs out of paper.

—Eds.

ERRORS AND OMISSIONS

The Error of Our Ways

I noticed a couple of errors in "How to Get What You Really Want" [DOS World #22, July 1995, page 43]. First, in the sidebar "A System to Fit Your Budget," you state that the DX nomenclature of the 486 "means that the chip runs twice (DX2) or four times (DX4, or 4DX) as fast internally as externally." Maybe you guys are from Texas, but, in Oz, a DX4 runs three times as fast as a 33MHz 486.

Then, on page 46 of the same article, you imply that you gain 32-bit disk and file access under Windows when you install an EIDE drive. Rubbish. You get 32-

bit disk access with Windows 3.1 and any old IDE drive that's WDC-TRL-compatible.

R.B. Maier
Moorabin, Victoria
Australia

Oops. Author Rob Hummel got the DX4 factor right in his original; the mistake was introduced during editing.

As for the EIDE/32-bit access question, you're right that upgrading to an EIDE drive isn't the only way to get 32-bit disk and file access; however, all EIDE drives support 32-bit access, while not all IDE drives do.

—Eds.

Righting a Wrong

I've discovered a problem with Donald W. Vance's program for pre-

venting prying coworkers from recovering deleted files ["Best of the Batch," #23, September 1995, page 14]. I couldn't get this line to work:

```
FOR %%A IN (%1) DO CALL %0  
GETRIDOFIT %%A
```

The first time the program calls itself, it executes okay. When it executes the second time, however, I get a "Bad command" error message. After examining the program, I concluded that this happens when the value %0 is replaced by the value in %1. My revised version of PURGE.BAT (opposite) solves the problem by saving the program's name in the environment.

Rodney Vance
Jackson, Mississippi

TO UPGRADE OR NOT TO UPGRADE

In a recent editorial, we asked readers whether they intend to trade up to Windows 95 ("DOS at a Crossroads with Windows 95," DOS World #23, September 1995, page 4). We received plenty of responses, most of them in the negative. Here's a sample.

Not Dreaming of a Win95 Christmas

After three years on a PC, I've decided not to play Bill Gates's Pied Piper game any more. I've ripped out Windows and all associated software, immediately freeing up 160MB of disk space.

When I saw a friend's new Pentium toy recently and noted that his 1GB hard drive came with 400MB of software, it became clear to me that Windows is a never-ending sinkhole, and I've had enough. I'm not impressed with Microsoft's phone system, its on-line forum presence, or its abandonment of DOS. I'm multitasking nicely with DESQView and have money and disk space, too. If I found WordPerfect for DOS and a Practical Peripherals 28.8kbps internal modem under the Christmas tree, I'd be perfectly happy.

Ray L. Allen
CompuServe

No Siree, Bob

Will I switch to Win95? To run applications not yet written and yet to be debugged? To learn yet another interface? To discover bugs and incompatibilities after "free" help (for which I pay the phone expenses) expires? To rewrite PIF, DLL, and INI files? To depend for support on the firm that created Windows NT and then expunged more than half of it in the next version, that's guilty of Bob, that bundles into its products crippled, out-of-date utilities from other developers?

Knowledgeable users have learned to wait a couple of years before fixing what ain't broke.

Frederick L. Sohn
New York, New York

No, Nay, Never

Going to Windows 95? No way! I can't afford it. The operating system is \$90; a new computer is \$3000. Next year, it will be Windows 96 and another \$3000 to replace my obsolete Pentium 100.

Burton J. Hollabaugh
Marion, Indiana

Tips from Readers

You Asked for It

In "Mastering Your Batch-File Tools" [*DOS World* #23, September 1995, page 36], Hardin Brothers discusses the use of a Ctrl+C sequence to break out of a batch file (and the batch file that called it). As he mentions, this technique presents a problem: DOS asks for confirmation, displaying a "Terminate job? (Y/N)" message, to which the user must respond by pressing Y. If the user presses N, the program will continue. Brothers solicits suggestions on how to hide the confirmation message and press Y for the user, as well.

My solution to the first problem is to use ANSI.SYS to hide the message. To do that, simply add to your batch file the sequence ECHO ESC[8m, which makes the color of the text the same as the color of the background. Of course, it also makes any output following the message invisible. That doesn't present a problem, though, if you add this sequence:

```
$E[0m
```

to the end of your AUTOEXEC.BAT file's PROMPT string. Before executing the next line of your batch file, DOS executes PROMPT and your display returns to normal.

I don't see a way to make stuffing a Y into the keyboard buffer work, because DOS flushes the buffer before checking for Y or N. Fortunately, my method for shutting down all batch-file processing doesn't require the user to press any keys. I use a GOTO command, followed by a nonexistent label name.

For example, I might use the command GOTO PIECES without including the label :PIECES in my batch file. When DOS executes the GOTO, it looks for the label :PIECES, but doesn't find it; it then terminates all processing and issues a "Label not found" message.

*Bill Perehinec
Winnipeg, Manitoba
Canada*

Fit to Print

Sometimes, when you try to use the Print Screen key to output graphics, you won't get a printout. Often, the reason is that you haven't loaded the necessary MS-DOS program, GRAPHICS.COM. To verify that that's the case, examine your AUTOEXEC.BAT file. If you don't see a reference to GRAPHICS.COM, type a command such as this one at the DOS prompt:

```
GRAPHICS
```

Then try to print again.

If AUTOEXEC.BAT has already loaded GRAPHICS.COM, try adding the type of printer to the existing line. This line, for example, tells DOS that you have a Hewlett-Packard Deskjet printer:

```
GRAPHICS DESKJET
```

Type HELP GRAPHICS to see a list of the printer types, brands, and models DOS recognizes.

*Hussein E. Al-Marzooq
Manama, Bahrain*

Run Rabbit Redux

Recently, a reader asked for help running Math Rabbit on a system

that didn't have enough available memory. ["Q&A," *DOS World* #23, September 1995, page 60]. Doug Lowe suggested a solution that involved having children watch the screen for the message "Starting MS-DOS" and press Ctrl+F5 to start the computer without DriveSpace, which was "stealing" memory from Math Rabbit.

I've run into the same type of problem with a few games my son plays. My solution is simpler: I create a special boot disk for each of his games. On that disk, I put copies of AUTOEXEC.BAT and CONFIG.SYS that load just what's needed to get the system up and running. Usually, that means CONFIG.SYS runs only the essential hardware drivers and perhaps commands to load HIMEM.SYS and EMM386.EXE (with the NOEMS switch), plus DOS=HIGH,UMB. AUTOEXEC.BAT often contains just the command that starts the game.

When my son wants to start a game, he puts the disk in the drive and turns on or resets the computer. As he gets older and wiser, I'll show him how AUTOEXEC.BAT and CONFIG.SYS work and let him decide whether he wants to use his game disks or press Ctrl+F5.

*Bill Black
CompuServe*

Going Back in Time

When I got the May 1995 issue of *DOS World* [#21], I was in the process of revising the batch file that executes when I start my computer. I immediately set Hardin Brothers's program GETINFO.BAT to the task of saving the date and time in the environment ["PROMPT

Delivery: Capturing Data in DOS," page 37]. His program, however, reads the time in fractions of a second, which is overkill. All I really want to know is the approximate time, so that I know whether the battery is okay or whether I've reset the clock for Daylight Saving Time. To eliminate extraneous details, I changed line 31 of GETINFO.BAT to read:

```
ECHO The time is %TIME%*****hrs.
```

The ASCII code for a diamond character is 8, the value for a backspace; in EDIT.COM, press the Alt key while typing 8 on the numeric keypad.

When GETINFO reads the time, it backspaces to remove the unwanted information.

*Laurence A. Gunnison
Murphy, North Carolina*

You can achieve the same result by placing six \$Hs in line 9 of GET-INFO.BAT. This solution is cleaner because it lets you use the time for purposes other than display on screen.

—Hardin Brothers

Up, Up, and Away

A few weeks ago, I installed a CD-ROM drive in my computer and then had trouble freeing up enough conventional memory to run a few of my programs. The CD-ROM driver, MSCDEX.EXE, reduced memory by about 45K. When I checked out DOS's help information, I discovered the /E switch, which lets you use expanded memory to store most of MSCDEX.EXE. By taking advantage of the switch, I managed to limit MSCDEX's conventional memory needs to just 24K.

*Timothy Scott
Melbourne, Florida*

This trick may not work with some older versions of MSCDEX, but you

can't do your computer any damage by trying it. One other warning: This technique won't work unless you have room to spare in your system's upper-memory blocks (UMBs). To use expanded memory, you need a 64K space in upper memory.

—Eds.

Remedial Reading

One day, when I tried to read the directory on a floppy disk in drive B, DOS displayed a "Data error reading drive B" message. I could copy files to the disk without any difficulty.

First, I tried without success to correct the problem with the disk-fixing utilities in PC Tools Pro and The Norton Utilities. No luck. In desperation, I formatted the disk and then unformatted it—and my disk was readable again. Perhaps your readers will find this trick useful.

*Nicholas L. Seachord
Washington, Kansas*

You did take the right approach: exhausting all possibilities for fixing the disk before turning then to FORMAT and UNFORMAT.

If the disk-read error happens again, however, don't try writing to the troubled disk, because you might inadvertently write over important information.

Another thing to remember is to not use CHKDSK /F on problem disks. Use ScanDisk instead; it's more capable and more reliable.

—Hardin Brothers

My Way to DEFRAG

Rather than run DEFRAG every two to four weeks, as Tony Roberts suggests ["Do-It-Yourself DEFRAG," DOS World #23, September 1995, page 29], I added this statement to my AUTOEXEC.BAT file:

```
C:\DOS\DEFRAG C: /F /S:E
```

Of course, that means that I run DEFRAG whenever I boot up. Unless I've done hard-disk housecleaning during my previous session, though, defragmenting the drive takes less than a minute.

*Jeff Shiepe
Internet*

Your approach is a good one if you're truly serious about keeping your hard disk defragmented, but a better idea might be to use ScanDisk to check your hard drive for flaws every time you start your PC system.

You can perform a simple check for errors by adding this line to your AUTOEXEC.BAT file:

```
SCANDISK /CHECKONLY
```

If the program turns up a problem, you'll have to run ScanDisk again, this time without a /CHECK-ONLY switch.

If you have very specific ideas about what you want ScanDisk to do, use the /CUSTOM switch instead. Then load your SCANDISK.INI file into an editor that saves files in text (ASCII) format, edit its [CUSTOM] section according to your needs, and save your changes. Comments preceding this section in SCANDISK.INI offer detailed advice.

—Eds.

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READER FORUM

Exorcising Demons

by Hardin Brothers

They're all around us! Computer gremlins lurk near our screens and pounce when we're not watching. I'm sure of it: Not only have they caused readers' problems this month, but they've also attacked my own machine, keeping me from installing a new operating system that should simply slide off the CD-ROM and onto my hard drive. But that's another story. Right now, perhaps I can help you fight your computer's little demons before I go back to battling my own.

Command Confusion

The first letter this month comes from Roger Gledhill of Ann Arbor, Michigan, who is having some problems with errorlevels in batch files:

If I type SET ERRORLEVEL=2 and then type SET, I can see that ERRORLEVEL is set to 2. I run a program that resets it to 0 (zero), and SET shows me that it's zero, again as I expect. But no matter whether SET shows ERRORLEVEL set to 0, 1, or 2, the following batch-program fragment always types out ERRORLEVEL = 1:

```
IF ERRORLEVEL 0 IF NOT ERRORLEVEL 1 ECHO ERRORLEVEL = 0
IF ERRORLEVEL 1 IF NOT ERRORLEVEL 2 ECHO ERRORLEVEL = 1
IF ERRORLEVEL 2 IF NOT ERRORLEVEL 3 ECHO ERRORLEVEL = 3
```

Why does this batch program fail to give me the answer I get when I type SET?

You've used SET to create an environment variable that happens to have the same name as a DOS com-

mand. Your batch file isn't testing that environment variable; instead, it's testing the exit code from the last program that ran.

To avoid that kind of confusion, don't use the names of commands for environment variables. It's easy to mix up variable names and command names within a batch file, but because I don't know what kind of problem you were trying to solve, it's difficult

to tell you how to fix the batch file to run as you intended.

The problem here isn't with the batch language itself, but with mixing the two commands SET and ERRORLEVEL. When you use SET, you place an entry in the *environment*—a list of information DOS copies and sends to every pro-

gram; you can read this list if you type SET from the C:\> prompt. When you use the command SET ERRORLEVEL=2, you've created a new entry in the environment with the name ERRORLEVEL and a value of 2. DOS itself uses a few entries in the environment, including COMSPEC, PATH, and PROMPT.

Applications and batch files use other environment entries in any way they see fit. If you want to use the value of an environment variable in a batch file, you have to enclose its name in percent signs, like this: %COMSPEC%.

The names of environment variables can be anything you want, including DOS commands; for example, DIR, COPY, and MKDIR are legitimate environment variables. DOS determines whether you're referring to a command or an environment variable of the same name by the context in which you use it.

From errorlevel problems to insufficient memory, computing gremlins are everywhere, waiting to catch you flat-footed and red-faced. But relax—we have ways to calm your worst nightmares.

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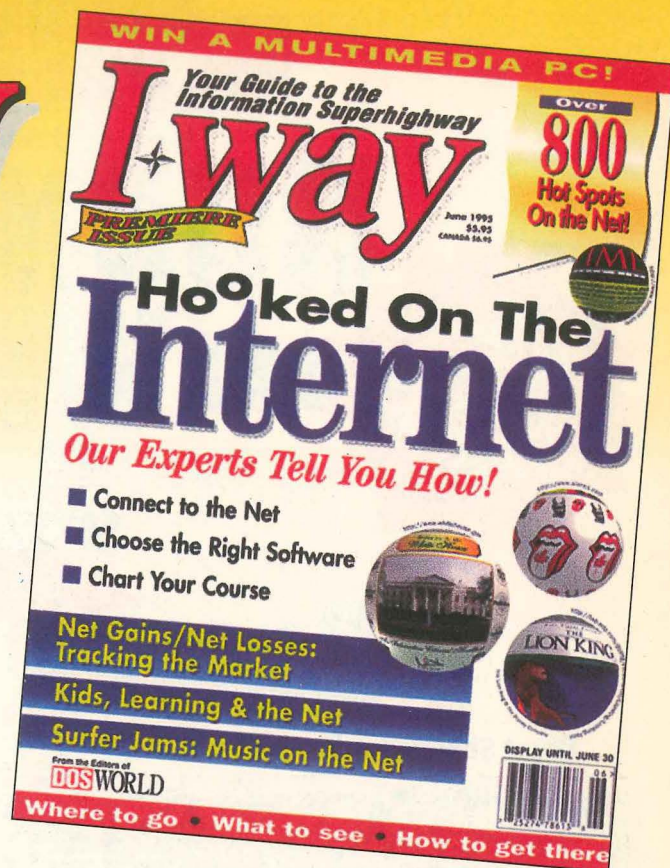
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When you use an environment variable in a batch file, DOS substitutes the text after the equal sign for the value enclosed in percent signs. DOS always views the variable's value as text; it handles the numeral 2 the same way it does A or any other text string. DOS can't perform numeric tests or calculations on environment values; it can only test two strings to determine whether they're equal.

In batch files, DOS recognizes ERRORLEVEL (but not %ERRORLEVEL%) as a command. The command ERRORLEVEL retrieves the exit value from the last program that ran. Every program (but not internal DOS commands) returns an exit value to DOS when it's finished. Many utilities use the exit value, which can range from 0 to 255, to signal whether they were successful or why they ended. Most large applications return an arbitrary value of no particular significance; it may vary each time the program ends.

In a batch file, IF ERRORLEVEL N (N being a number between 0 and 255) retrieves the exit code of the last program and tests whether it's equal to or greater than N. IF ERRORLEVEL 2, for example, means "if the last program returned an exit code between 2 and 255." Now you can see what happened in your batch file.

Memory Troubles

A different kind of gremlin is bothering Kenneth Hart of Austin, Texas:

This question is about loading programs into memory above 1024K (extended memory) for the purpose of freeing conventional memory below 640K. Specifically, MSCDEX.EXE (Microsoft's CD-ROM driver) and my custom CD-ROM driver take up 83K of memory, which I need for other programs. I've tried the LOADHIGH and DEVICEHIGH commands in AUTOEXEC.BAT and CONFIG.SYS, but with no success. I've enclosed copies of my AUTOEXEC.BAT and CONFIG.SYS files and a printout of memory usage generated with the MEM command.

The short answer for anyone having trouble freeing up enough memory for DOS applications, is to make sure that the first three lines of CONFIG.SYS are correct: DEVICE=HIMEM.SYS (with optional switches); DEVICE=EMM386.EXE (with either the NOEMS or the RAM switch plus other necessary switches); and DOS HIGH, UMB (to move DOS and some of its data to the HMA and enable use of the upper-memory blocks).

When the computer is operating in DOS, or "real," mode, it can access 1MB of memory. The first 640K, conventional memory, is set aside for DOS and applications. Since the days of the first IBM PC, the remaining 384K—upper memory—has been allocated to the ROM BIOS, video memory, and add-in cards. Everything above 1024K—memory that's

available only if you switch the CPU out of real mode and into protected mode—is called *extended memory*, because it extends past the range normally available to DOS and DOS-based applications.

One of the most popular early PC applications was Lotus 1-2-3. Some users found that 640K wasn't enough for the humongous spreadsheets they wanted to create. So Lotus, Intel, and Microsoft created the Expanded Memory Specification (LIM-EMS or just EMS) to use a 64K block of memory as a window on several megabytes of additional RAM.

From a programmer's perspective, using EMS memory is a royal pain. A few programs can use or may even insist on EMS memory, but most modern programs ignore it.

With the advent of the 80386 chip set, followed by the 486 and the Pentium, it became possible to "map" memory above the 1MB normally available for DOS into holes in the upper-memory region. Each chunk of this remapped memory is called an upper-memory block, or UMB. You can load device drivers and some memory-resident programs into UMBs to free up conventional memory. There's no performance penalty for doing so, except maybe a slight slowdown when the computer boots.

Assuming you have extended memory, the first line of your CONFIG.SYS file should load an XMS manager. The one included with DOS is called HIMEM.SYS. If you want to use upper-memory blocks, the next line should load EMM386.EXE or EMM386.SYS, depending on which DOS version you're using. You must add the NOEMS switch to EMM386 if you don't need EMS memory (you probably don't), or the RAM switch if you do. Without these switches, upper-memory blocks won't be available.

But HIMEM and EMM386 aren't enough by themselves. You need one more line in CONFIG.SYS—DOS HIGH—if you want to put DOS itself into the HMA, which you probably do. If you also want to use UMBs with the DEVICEHIGH or LOADHIGH command, the line should read DOS HIGH, UMB.

Once that's done, you're ready to move device drivers and memory-resident programs into UMBs. Or you can simply run MEMMAKER to do the work for you. MEMMAKER isn't perfect, but it does a reasonable job of fitting programs into UMBs and modifying your CONFIG.SYS and AUTOEXEC.BAT files. Just make sure you keep an emergency start-up disk and backup copies of your CONFIG.SYS and AUTOEXEC.BAT files handy in case you have to undo the work MEMMAKER tries to do. ■

Technical Editor Hardin Brothers has been working with computers and writing about them for 15 years. He's DOS World's "Shareware Exchange" columnist and "Batch-File Medic" author, and also serves as a technical editor, feature writer, and columnist for Maximize magazine.

Best of the Batch

GET HLP WHEN YOU NEED IT!

If you've collected a number of freeware programs, shareware titles, and batch files, you probably also have more than a few documentation files scattered all over your hard drive. Wouldn't it be convenient to put all these docs into one single help file, which you could then access as you do Help for DOS commands? The batch file HLP.BAT (see the accompanying listing, below) does just that.

With the able assistance of PKZIP, HLP.BAT puts your documentation into one handy help file for easy access. Line numbers shown here are for your reference only; don't type them in.

```

1 @ECHO OFF
2 IF "%1==" GOTO HELP
3 IF %1==/? GOTO HELP
4 IF %1=? GOTO HELP
5 IF %1==/H GOTO HELP
6 IF %1=H GOTO HELP
7 PKUNZIP/O C:\UTILS\HLP %1 C:\UTILS>NUL
8 IF ERRORLEVEL 1 GOTO ERR
9 ::Better than the following "MORE" command is:
10 ::EDIT C:\UTILS\%1
11 MORE<C:\UTILS\%1
12 DEL C:\UTILS\%1>NUL
13 GOTO END
14 :ERR
15 ECHO ERROR: Can't find %1 in C:\UTILS\HLP.ZIP
16 PAUSE
17 GOTO HELP
18 :HELP
19 CLS
20 ECHO.
21 ECHO.
22 ECHO HLP.BAT 2.30 F.L. Sohn 8/16/95
23 ECHO.
24 ECHO Enter "HLP [topic]" to run:
25 ECHO.
26 ECHO ANSI BOOT DRVLOAD DRVTYPE FGREP
27 ECHO FINDIRQ FM FV LOOK MARK
28 ECHO MCOPY PERUSE PORTAL PREFIX READ
29 ECHO SHRED STACKCHK
30 ::Replace the HLP.ZIP files in lines 26-29 with
31 ::the names of your own HLP.ZIP files.
32 :END

```

End

Let's say, for example, that you have a file-find utility called Searcher that comes with a text file containing instructions. All you do is type the following line:

HLP SEARCHER

and HLP.BAT displays that documentation. HLP retrieves the docs from a file called HLP.ZIP, which you create with PKware's PKZIP. If you use a different archiving utility, replace the references to PKZIP with references to your own archiver.

Step by Step

Here's how to use HLP. The first step is to create the archive. Type in the following command to add each text file to HLP.ZIP:

PKZIP C:\UTILS\HLP.ZIP filename.TXT

Filename represents the name of the text file you're adding. To make your computing life easier, rename each documentation file to match the name of the program. For example, if the documentation file for Searcher is README.TXT, rename it SEARCHER.TXT.

This example puts HLP.ZIP into the subdirectory \UTILS, but you can put it into any subdirectory. Make sure you change the subdirectory in line 7, as well.

Now type in HLP.BAT as it appears in the program listing, minus the line numbers. Lines 26 through 29 contain the names of the files in HLP.ZIP; replace the examples with your own filenames. Save the batch file to a subdirectory referred to in your AUTOEXEC.BAT's PATH statement. In addition, make sure that PKUNZIP is in a subdirectory also listed in your PATH.

Running HLP.BAT is simple. If you type HLP by itself or HLP followed by one of the switches in lines 3 through 6 (/?, ?, /H, or H), HLP.BAT jumps to the :Help subroutine, which starts with line 18. The subroutine then displays the proper syntax and lists the files in HLP.ZIP.

If you type HLP followed by the name of a file in HLP.ZIP, line 7 decompresses the file with PKUN-

Windows

Tip

Three Faces of File Loading

Windows 3.1 provides three ways for you to launch a program at start-up: specifying the program in the RUN= line in your WIN.INI file, specifying the program in the LOAD= line in WIN.INI, and including an icon for the program in your StartUp group. Let's look at some of the differences.

A program mentioned in the RUN line runs in an open window. A program mentioned in the LOAD line is minimized, so it appears as an icon on your desktop. You can run a program placed in the StartUp group in an open window or minimize it. By default, the program appears in an open window. To minimize it at start-up, check the Run Minimized box in the program's Program Item Properties box, which you display by selecting File/Properties from Program Manager.

Programs in the StartUp group always load after those mentioned in the RUN and LOAD lines. You can bypass the StartUp group by holding down the Shift key when the Windows logo screen appears. You can't bypass the programs mentioned in the RUN and LOAD lines.

Note also that when you add LOAD and RUN lines to WIN.INI, they shouldn't include command-line parameters. For example, you can't create a LOAD command that starts your word processor and opens a particular word-processing document. Unless the files they mention are stored in your WINDOWS directory (usually C:\WINDOWS), RUN and LOAD commands must provide the path for the programs they launch.

Finally, these commands can accommodate 127 characters; if you exceed the limit, Windows recognizes only the first 127 characters.

—Ken Johnson

Line 11 uses DOS' MORE command to list the file. (If you've got a favorite file viewer, substitute it here.) The command is as follows:

```
MORE<C:\UTILS\%1
```

Wrapping It Up

Note that DOS's MORE command doesn't give you the chance to scroll back and forth through the documentation. If this ability is important to you, replace line 11 with line 10, which loads the help file into the DOS text editor, Edit (the program EDIT.COM).

If you use Edit to view your help files, remember that any changes you make to the document won't be saved in HLP.ZIP.

When MORE finishes paging through the help file (or, if you're using Edit, you exit the program), HLP.BAT deletes the help file and exits to the DOS prompt.

One more detail to keep in mind: Remember that when you add items to the HLP.ZIP file, to be consistent

you must also add those same filenames to the ECHO statements in lines 26 through 29.

*Frederick L. Sohn
New York, New York*

ZIP. As written, HLP.BAT puts the file into the subdirectory HLP.ZIP occupies, but the location really doesn't matter much, because HLP will eventually delete it.

EDITOR'S NOTE

There's an easy way to let HLP.BAT automatically list the files in HLP.ZIP so that you don't have to update the ECHO statements each time you add a file to or delete a file from HLP.ZIP. Substitute the following command for lines 26 through 29:

```
PKUNZIP -V C:\UTILS\HLP.ZIP | MORE
```

As Frederick L. Sohn pointed out to us in correspondence, the display will confuse anyone who isn't familiar with PKZIP and PKUNZIP, because it provides a lot of other information besides the filenames. Use it only if you're confident that the users of HLP.BAT can decipher the listing. (Or figure out a way to show only the filenames.)

Intrepid batch-file programmers might also think about adding routines to add files to and remove files from HLP.ZIP. For

example, the following command might run a routine that renames the help file SEARCHER.DOC to SEARCHER, then adds it to HLP.ZIP:

```
HLP /A SEARCHER.DOC
```

Such a routine would make the batch file more portable; that is, you could run the same batch file unmodified on a number of computers, even if each computer has a different HLP.ZIP. It would also make the batch file more flexible for users who aren't batch-file programmers and aren't comfortable making changes to the ECHO statements in the version presented here.

—Eric Maloney



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DOS Program Hints and Tips

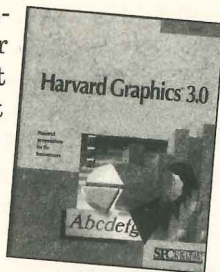
by Anne Fischer Lent and Stan Miastkowski

Whether you're new to most popular DOS applications or an expert power user, chances are you're not using your software to its fullest. Every application has its tips, tricks, and shortcuts that can simplify your computing life and increase your productivity. But even experts don't always know all the time and effort savers. Here are more than two dozen tips we've come across that'll make your DOS computing easier and more efficient.

TIP #1

Harvard Graphics for DOS: What You See Isn't What You Get?

If you have trouble getting printouts to look like what's on your screen, check your printer-output options. (Press F8 from the Output to Printer screen.) You can also press F2—Preview mode—to see what your file will look like before you print.



TIP #2

Harvard Graphics for DOS: Launching DOS Apps in ScreenShow

Do you often need to pop over to another application during a presentation—for a backup, to answer a question, or just to integrate information from a spreadsheet or database? You can do that with Harvard Graphics 3.05 for DOS during a ScreenShow. Designate your destination application to launch auto-

matically during a ScreenShow, or create a HyperShow button to trigger the application during your presentation.

TIP #3

Harvard Graphics for DOS: Preview Your Charts

Save time and paper by taking a look at your charts before you print them. To do that, simply select Output from the main menu; then choose Presentation. Select the appropriate output device, and set the options you want in the Output Presentation pop-up. Then press F2 to preview the first chart; press F10 to preview each subsequent chart.

TIP #4

The Norton Commander: Powerful Inversions

Using The Norton Commander's Invert Selection command is a handy way to extend the utility's already-powerful group selection abilities.

For example, let's say you want to delete or move all files in a subdirectory *except* those with a TXT extension. Here's how:

1. Display the directory in the Norton Commander panel; press the plus key on the numeric keypad to bring up the Select menu.
2. Change *.* to *.TXT and press Enter. Commander will highlight all files with a TXT extension.
3. Press F9 to bring up the Commander menu bar at the top of the screen. Pull down Files and choose Invert Selection. This option will highlight all files *except* those with a TXT extension. Then press the F6 (Move) or F8 (Delete) key to remove the files. You'll be left with a subdirectory containing only the files you want.

Anne Fischer Lent and Stan Miastkowski have a combined total of nearly 30 years' experience covering personal computers. They've written numerous articles on using computers in the real world and have coauthored two books, the most recent being The Windows for Workgroups Bible (Addison-Wesley, 1993). You can reach them on the Internet at alent@bix.com and stanm@bix.com, respectively.

TIP #5**The Norton Commander:
Command Redux**

During the course of your workday, do you often need to type the same DOS commands over and over again? Newer versions of DOS (6.0 and later) include the TSR (*terminate and stay resident*, also called *memory resident*) program DOSKEY, which lets you recall and edit previously entered commands. But why take up RAM space with DOSKEY when Commander already includes that capability? It also offers a few extras that set it apart from DOSKEY.

At any point in The Norton Commander, select Commands/History (or press Alt+F8) to bring up a list of the last 16 DOS commands you issued during the current Commander session. Use the cursor keys or your mouse to select the command and hit Enter to execute it. If you want to edit the command before using it, move to the command (either with the cursor keys or the mouse), press F4, make your changes, and press Enter.

Commander also provides a shortcut: Type the first few letters of a recent command and press Ctrl+Enter. For example, if you want to reuse an involved COPY command containing several parameters, type C0 at the DOS prompt and press Ctrl+Enter. The line will appear at the DOS prompt, where you can execute or edit it.

TIP #6**The Norton Commander:
Filtering It Out**

By default, Commander shows all files contained in a directory. The Filter command, however, lets you customize exactly which files are shown in both left and right panels. This option is particularly useful if other people use your PC and you want to hide certain files from them (although they're still available from the standard DOS DIR command).

Press F9 to bring up the Commander menu bar at the top of the screen, and pull down either Left or Right. Select Filter. The All Files option is checked by default, but you can check any of the other selections, including Executable, Database, Spreadsheet, Word Processor, Graphics, or Compressed Files. You can also specify a custom view by entering a standard DOS wildcard pattern.

You can further filter the display to specifying DOS file attributes. By default, Read Only, Archive, System, Hidden, and Directories are all checked.

TIP #7**The Norton Commander:
Instant Application Access**

You don't need Windows for "point and shoot" instant access to applications associated with files. The Norton Commander lets you create an "extension file"

that lets you point to a file, press Enter (or double-click with your mouse), and load the file into the application that created it.

Let's say you want to start Lotus 1-2-3 for DOS automatically each time you choose a file with the WK3 extension. Press F9 to bring up the Commander menu bar at the top of the screen and pull down the Command menu. Select Extension File Edit. You can then use the function-key commands at the bottom of the screen to insert, edit, or delete an association. Commander lets you create as many associations as you need or want. Press F1 for detailed help on filling in the needed information.

TIP #8**Procomm Plus for DOS:
Hang It Up**

If pressing Alt+H at the end of a Procomm on-line session doesn't hang up the modem, the hang-up string may not be allowing enough time for the modem to "wake up" and recognize the hang-up command. Here's how to fix the problem:



1. Exit Procomm Plus and run PCSETUP.EXE from your \PCPLUS directory.
2. Select Modem Options from the main setup utility, and then Modem Commands from the next menu.
3. Choice D (Hang-up Command) should include several tildes (~) (Procomm's "pause" character). To increase the pause time, press D and add a few more tildes to the command.
4. Press F10 to save and exit. Go on line, and see whether the Alt+H hang-up command works correctly. If it doesn't, go back to step 1 and add more pauses until hang-up works correctly.

TIP #9**Procomm Plus for DOS:
Download Blues**

Do you get a "File Creation Error" message when you attempt to download a file from an on-line service or bulletin board?

You should be aware that there are two possible causes, both of which are easy to remedy:

1. A file by the same name already exists in the directory to which you're downloading. Either rename the file, or use a different name for the file you're downloading.
2. If you're absolutely sure you don't have a file by the same name, then DOS doesn't have enough file handles available. Edit CONFIG.SYS to make sure the FILES= line is set to at least 25.

TIP #10**Procomm Plus for DOS:
Voice/Data Switching**

You don't need a fancy new (and expensive) modem or special software to switch between voice and data while you're connected to another computer. All you need is your current modem, Procomm Plus for DOS, and a cooperative person on the other end of the line:

1. To switch from voice to data, one person types ATA in Procomm's Terminal mode, while the other types AT0. Then both users press Enter and hang up their handsets. The modems will then "talk" to each another.
2. To switch from data to voice, both users pick up their phones while on line. One person presses Alt+H (the hang-up command). This forces the modem back to its command state and enables voice communication.

TIP #11**Procomm Plus for DOS:
Finding Lost Characters**

If you're losing characters on screen while connected to an on-line service or BBS and can't download files, the problem's probably not a bad telephone line. Instead, chances are you're using too many memory-resident programs or one that hogs too many system resources. Clock programs and screen blankers are likely culprits, because they can take big chunks of your PC's CPU time. It's an even bigger problem if your PC has an older, low-powered processor, such as a 286 or 386SX. Try rebooting your system without the TSRs; most of the time, that will solve the communications problem.

TIP #12**Quicken 8 for DOS:
Quick New Accounts**

One of the most common uses for Quicken is bank-account record keeping. Like most people, you probably need to track more than one account. To set up additional accounts, you normally use the Select Account command, and then go to Select Account form the main menu. But there's another way to set up an account. From either the Register screen or the Write Checks screen, the Print/Acct menu shows the Select Setup Account command. Click on it, and you'll get to the Select Account to Use screen. From there, just select New Account and you'll get the Set Up New Account Screen.

TIP #13**Quicken 8 for DOS:
Compensating for Memory Loss**

When you use Quicken to write checks, you enter the check number and amount just as you do in your paper checkbook. But Quicken also lets you assign a category to each check, such as Mortgage, Taxes,

Donation, and so on. If you can't remember the names you've assigned to categories in Quicken, there's an easy way to call them up: Pull down the Shortcut menu and select the Categorize/Transfer command, or press Ctrl+C. Don't worry about entering nonexistent category names. Quicken will ask whether you want to create a new name; it will also let you display the Category/Transfer screen again, so that you can select a category you've already created.

TIP #14**Quicken 8 for DOS:
Void But Not Forgotten**

We've all had to delete or void checks. When they're paper, it's simple—just tear them up and write *Void* in the register. You're left with the satisfaction of knowing that you'll never write that check again. In Quicken, it's easy to void a check (use the Edit menu's Delete or Void Transaction command), but you're never quite sure that it's gone for good. It remains in the register with the word *void* in front of the Payee field, and Quicken erases the payment field. But beware: If you ever go back and, by mistake, fill in the payment field, Quicken forgets that you voided the check and proceeds to subtract it from your balance.

TIP #15**Quicken 8 for DOS:
What's Happening Here?**

For a simple product, Quicken can output all kinds of sophisticated, and potentially confusing, reports. If you wonder how Quicken could possibly have arrived at some specific number, just zoom in on it (press Ctrl+Z or select File/Print/QuickZoom) and let the program explain. QuickZoom lists the transactions that make up that number, so you'll know where it came from.

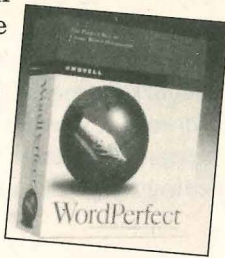
TIP #16**Quicken 8 for DOS:
Who's Minding the Bills?**

If you're in the habit of preparing bills before they're due but not cutting the checks, you can use Quicken's handy Billminder to remind you to print them. Billminder looks at any unprinted checks with dates that fall on or before the current date. You can tell Billminder to look for unprinted checks every time you turn on the computer, or at any interval you specify:

1. Select Set Preferences from the main menu.
2. Select the Automatic Reminder Settings command.
3. Set the number of days in advance you want to know about unprinted checks (from 0 to 30).
4. Specify whether you want Billminder to show the To Do list for each file, which includes unprinted checks and scheduled transactions.
5. Then press Y to turn Billminder on, and hit Enter.

TIP #17 WordPerfect 6 for DOS:
Better Mousetraps

If your mouse isn't working with WordPerfect, pull down the File menu and select Setup/Mouse. Change the driver; WordPerfect 6 uses its own MOUSE.COM driver, but try the default setting to see whether that's the problem. (Drop down the driver list and select the default.)

**TIP #18** WordPerfect 6 for DOS:
Lefties, Unite!

If you're left-handed, you can make using the mouse more comfortable. Pull down the File menu and select Setup/Mouse; click on Left-handed Mouse and OK.

TIP #19 WordPerfect 6 for DOS:
Customizing the Screen

To customize your WordPerfect screen, pull down the View menu and select Screen Setup. Within this box, you can alter pull-down menus, the outline bar, the button bar, display characters, percentage of zoom, and more. Edit the screen setup to your heart's content; then click on OK to accept the changes.

TIP #20 WordPerfect 6 for DOS:
Getting Back to Normal

If you share WordPerfect with other family members or coworkers and you've done some customizing they don't want to use, add the command-line switch /X after you type WP to start up. WP /X tells WordPerfect to start with the default settings while ignoring any customization you've stored. To get back to your customized setup, just start WordPerfect by typing WP.

TIP #21 WordPerfect 6 for DOS:
Taking It with You

Before you travel away from your main computer, save your files in ASCII format so that you can open them in any word processor: Select File/Save As, and choose ASCII Text (Standard) from the drop-down list. Enter a unique filename so that you know it's your ASCII version. Don't expect the ASCII text to look like your fancy WordPerfect version, though. When you save a document as ASCII, you lose the formatting.

TIP #22 XyWrite for DOS:
Undoing a Mistake

Assuming that you're saving a file often, you can easily get rid of the last version with the Abort command.

After you've saved your open XyWrite document at least once, just press F5 and type AB if you make a mistake and don't want to save that version. You'll see the message "File was modified—abandon changes? (Y/N)." Press Y to toss out your most recent version and clear the screen. Then call up the original again and start fresh.

TIP #23 XyWrite for DOS:
Managing Files

Windows power users may scoff at running a DOS-based word processor, but XyWrite puts hidden File Manager-like power at your fingertips. Using a few simple commands, you can create new directories, change the current directory, or remove an unwanted directory:

- To make a new directory called Letters, press F5 and type MKDIR Letters.
- To change the current directory on drive C to Letters, press F5 and type CHDIR C:Letters. (Don't include a backslash after the drive designation.)
- To remove a directory such as Letters, you must first delete all files from it. Type CHDIR to move into a directory other than Letters; press F5 and type RMDIR Letters.

TIP #24 XyWrite for DOS:
Talk About Multitasking!

XyWrite lets you run DOS commands and batch files from the command line. Just press F5 and type D0 (use lowercase if you prefer), followed by the drive letter, the word COMMAND, and any command and its arguments, as in the following example:

```
D0 C:\COMMAND /C CHKDSK C:
```

Note that the D0 command requires that your system have enough RAM to load the desired application in addition to XyWrite and any open XyWrite files.

TIP #25 XyWrite for DOS:
Resuming Print Jobs

If you've issued the KILTYP command to stop a print job, but you want to restart where you left off, you can specify the page number where you'd like printing to resume. Just reissue the TYPE command by pressing F5 and typing TY; add the filename and page number:

```
TY LETTER.DOC, 2-
```

XyWrite will resume printing the letter at page 2. Note that you can also use this trick to start any print job at a designated page. ■

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SHAREWARE EXCHANGE

Special-Delivery DOS Utilities

by Hardin Brothers

I think you folks out there must be slipping. Usually, you all get together and bombard me with a dozen file managers, two dozen terminal programs, or a boxful of Basic utilities. But this month, I've received a wide array of shareware to test and enjoy. Some of these programs you may not use every day, but one of the others might be just the thing you've been looking for.

The programs discussed here are available from the *DOS World* bulletin-board system (603-924-3181), as well as from most information services and local BBSes. (See the accompanying sidebar, "Share the Wealth," opposite, and the "DOS World BBS" section of "How to Use This Magazine," pages 62 through 64 in this issue, for details on accessing the bulletin board. Registration fees are listed in the "Product Information" box, page 24.)

Fast Formatting

QDR, the first program this month, submitted by Robert Batterberry of Mount Vernon, Washington, has been around a long time. If you use floppy disks often, though, it should be in your library:

I like to reformat floppies. Starting a big backup or copy job with clean floppies is similar to driving a washed car: Things just seem to work better.

Also, I like to reformat disks before discarding them; I don't want to accidentally give away copies of proprietary software or my personal files. One of the fastest ways to format floppies is with Vernon Buerger's QDR utility.

QDR fits into any software toolbox and greatly speeds up reformatting. Using QDR is easy. Type QDR with no parameters for a help screen. All you need to know is there. QDR will detect and handle all floppies and detect and reject hard drives and RAM drives. For real speed, use QDR with its /N switch, which tells the program to use no prompts or messages; it just goes directly to work.

If you have kids at home, make sure they use the /N switch only with parental supervision. It gives no warning and doesn't ask for permission; everything on the target disk is gone.

QDR erases labels, subdirectories, and files. I've found that MS-DOS's FORMAT command with /Q takes 15 seconds. QDR with the /N switch takes five seconds.

I agree that you should always reformat floppy disks before use. With both QDR's and DOS's fastest versions of the FORMAT command, only the disk directory and FAT (file-allocation table) are changed; data stays on the disk, and individual sectors aren't reformatted or tested. A more complete format tests each sector and keeps DOS from trying to write to those containing errors.

QDR is great for fast reformatting or formatting from within a batch file. If you use the /N switch, with or without other options, it never pauses to prompt you. That's a lot less annoying than DOS's prompt to insert the disk, another prompt for a volume label (unless you use the /V switch), and a third asking whether you want to format another disk.

*If you're tired of utilities
by the dozen, check out these
off-the-beaten-path programs.
They'll add zest to your formatting,
jazz up your batch files, and even let
you keep an eye on your modem.*

As Robert Batterberry says, QDR is also fast—very fast if you want to do a quick format. Like him, I found that QDR was about three times faster than DOS's **FORMAT** command.

QDR lets you do a thorough disk format and test; it also lets you specify whether you want to format the disk for 160K, 180K, 320K, 360K, 720K, 1.2MB, or 1.44MB capacity. And you can select DOS or the BIOS to write the new tracks on your disk; that choice can sometimes help you work around a hardware problem or an interaction between DOS and the TSRs you're using. The only feature of DOS's **FORMAT** function that QDR lacks is the ability to save **UNFORMAT** information to the disk.

QDR is old but not obsolete. Unless you buy all your disks preformatted and throw them away after one use, give QDR a try.

Graphical DOS Shell

Frequent readers of this column know that I don't have much interest in DOS shells. But Mike Bennett of Halifax, Nova Scotia, has submitted **The Gorin Desktop**, a DOS shell many of you might enjoy:

This is the most outstanding DOS-based shareware graphical user interface I've ever seen. It's seriously challenging my resolve not to stray from the DOS command line.

I've tried and given up on OS/2 Warp and Windows, but this program has me scratching my head in disbelief. This incredible front-end program sits alongside DOS, is mouse driven, includes lots of icons, and is uncommonly intelligent during setup. System requirements are extremely modest, so almost all readers should be able to try it.

To run **The Gorin Desktop**, you need a VGA video system and a PC/XT or higher computer. If you're still using CGA, EGA, or Hercules monochrome, you'll have to look elsewhere; otherwise, this is a nifty DOS shell program.

The Gorin Desktop lets you pick or create a graphical wallpaper for a backdrop. You can import a PCX file or design your own in the program's built-in paint module.

For those of you who enjoy the convenience of having additional software perks at your fingertips, **The Gorin Desktop** also includes a simple calculator, a terminal program, a telephone dialer, an icon editor, and a contacts database manager, plus other goodies.

But the main part of the **Gorin Desktop** screen is a collection of icons representing groups of applications. Click on one and you'll see another group of

icons representing applications. Click on one of those and the application runs. When it's done, you'll be back in **The Gorin Desktop**.

If that sounds familiar, that's because it's essentially the way other graphics-based DOS shells work. And, some would argue, that's also the way Windows works, especially if you spend all your time in Windows running DOS programs.

When you set up **The Gorin Desktop**, it will, with your permission, scan your hard disk for "known" application programs. The process is fast, if somewhat inaccurate; it collected many of my Windows applications and put them in a DOS group, while also locating several utilities it identified as major applications.

But other than that, this is a neat little graphical desktop. It's certainly more appealing than the **C:\>** prompt, and it runs on almost any DOS computer.

Snazzy Batch Files

I've written about several batch-program enhancers in "Shareware Exchange." Each one has its own strengths and weaknesses. Lary Harris of Rockville, Maryland, thinks every batch programmer should try **Screen Wizard**:

I've tried most of the batch files listed in your magazine and write a few of my own, as well. Beyond just

SHARE THE WEALTH

Our "Shareware Exchange" column invites you to send a copy of your favorite shareware program, along with a description and an explanation of why you like it (no more than 500 words) to Shareware Editor, *DOS World*, 86 Elm Street, Peterborough, NH 03458. Tell us how we can obtain a copy of the program. We'll pay contributors \$50 for each program featured here. Please don't send us shareware you've written yourself—we prefer recommendations from users, not authors.

Contact us on CompuServe at **75300,2361**; on the Internet at **75300.2361@compuserve.com** or **editors@iway.mv.com**; or on the *DOS World* BBS at **603-924-3181**. All programs featured in "Shareware Exchange" are available by modem from the *DOS World* BBS (instructions on page 64). QDR (QDR40C.ARC), **The Gorin Desktop** (GORIN.ZIP), **Screen Wizard** (SW-46A.EXE), and **ModemSta** (MODSTA17.ZIP) are in File Area 5. In addition, most of the programs described in "Shareware Exchange" can be found on major on-line services and local BBSes.

—Eds.

PRODUCT INFORMATION

QDR 4.0c, \$15

Vernon D. Buerg
139 White Oak Circle
Petaluma, CA 94952
707-778-8944 BBS

Screen Wizard 4.6a, \$15

plus \$2.50 shipping
Warren Small
35 Benjamin Street
Manchester, NH 03109

The Gorin Desktop 2.1,**£24.95**

Neil Gorin
4 Rockwood Drive
Stevenage, Hertfordshire
SG2 8PJ
United Kingdom

ModemSta 1.7, \$15

Teddyware
Ted Johansson
Sveavägen 66
S-182 62 Djursholm
Sweden

getting them to run, I like them to look nice on screen. That's why I dress up many of them with Screen Wizard. It's a handy little shareware utility that takes up only 44K on my hard disk; it's not memory resident, but is always ready to improve the appearance of a batch file.

Screen Wizard can change the screen and text colors, make text boxes, clear the screen in various colors, perform queries featuring various colored "hot" letters or numbers, provide timed pauses, and create sound effects. And it's so small that I can include it on floppies with batch files I pass to friends.

Screen Wizard is one of the handiest and simplest batch-file utilities I've tried, and onlookers are really impressed when they see multicolored screens, text boxes, snazzy menus, and sound effects emanating from a simple batch file.

I have to agree with Lary Harris that Screen Wizard is both impressive and quite compact in size. It isn't the easiest batch enhancer to use, but if you can write a batch file, you'll soon learn to add Screen Wizard commands to it.

To use Screen Wizard, you simply replace any ECHO commands with SW commands. Besides including the text you want to display, you also use a variety of option switches to turn various features on or off: foreground and background color, colored text boxes, and menus, for example.

Other options control the whole screen, set various backgrounds and textures, play simple sounds, and even accept multiline user input. Screen Wizard's options are clearly explained in the 20-page manual and are shown in action in the short demonstration batch file that comes with the program. The easiest way to understand how all the options work is to write a series of simple batch files and experiment.

Some batch enhancers offer more options than Screen Wizard; some require less disk space. But this program does a very good job of balancing features and size. It's small enough to slip onto crowded floppy disks and compact enough to almost disappear on today's large hard drives. And it offers enough features that you'll never get bored using it.

Do You Know What Your Modem Is Doing?

I started off this month by installing a new computer, one that will run anything from DOS 5, 6.x, or 7, Windows 3.1, 3.11, or 95, or OS/2—all at the press of a button or two. It's a great machine, and it's doing most of what I want, but I do have to change some of my computing habits to use it.

Most annoying is this machine's internal modem. I've always used external modems in the past, even though they cost a little more and may be slightly less dependable than internal models. I've come to rely on both the audible sounds of an external modem logging into another computer and those flashing red lights on the front of the case that let me know exactly what's going on.

My new computer came with an internal modem, so I had to give up the lights and also learn to put up with a modem speaker that's somewhat less than audible. I was thinking about various ways of overcoming these drawbacks when I came across a program called **ModemSta** (short for the ridiculous name Modem Status Iconic Indicator).

ModemSta is a Windows program that creates a tiny window on screen; you set up the window to monitor any serial or parallel port. When it detects modem activity (from a serial port) or printer activity (from a parallel port), ModemSta displays a number of blinking red "lights" on screen—similar to those you'd see on an external modem. They tell you whether the modem is active, whether it's connected to a remote machine, whether your system is sending or receiving data, and so on. If you're monitoring a parallel port, you'll see a light representing each of the data and status lines.

Some people might consider ModemSta "nagware" because it asks you to register almost every time you start or stop it. But it's so handy that it's more than worth the modest registration fee. Its documentation isn't much, but the program is so easy to use it doesn't need much. If you use a modem with Windows 3.1, 3.11, or 95, ModemSta may be just what you need to get a sense of what your modem is doing and when. ■

Technical Editor Hardin Brothers has been working with computers and writing about them for 15 years. He's DOS World's "Reader Forum" columnist and "Batch-File Medic" author, and also serves as a technical editor, feature writer, and columnist for Maximize magazine.

INSTALLING WIN 9 5

Windows 95: Watch Your Setup

For a trouble-free upgrade, know the lay of the land before you even think about putting that setup disk into your CD-ROM or floppy drive.

by Hardin Brothers

Unless you're a diehard fan of DOS computing, you know you'll eventually install Windows 95. Its new interface, faster performance, and expanded resources are all compelling reasons to upgrade. If *they* don't get you, sooner or later the temptation of new Win95 programs and updates of old favorites will.

If you have a long history of upgrading from one DOS version to another, you probably expect Win95's installation to be a breeze. And there's a good chance it will be. You may even think you'll try it for a while and return to trusty Windows 3.1 and DOS 6.x if you don't like the latest offering on Microsoft's menu.

That's certainly possible, or you can choose between booting to DOS 6.x and going directly to Win95 at start-up—if you make the right

installation choices. Making the correct decisions starts with two very basic rules:

- Know what awaits you.
- Take a few precautions before starting out.

Advance Preparations

Your first task, of course, is to make sure your computer can run Win95. Most PC compatibles on the market today can, but some older computers are too slow or too limited. Win95 needs at least a 386 processor and 4MB of RAM, but it will be slow and grouchy on such a machine. A 486—the faster the better—with 8MB of RAM fits Win95 comfortably. A faster CPU and more RAM will make it happy.

You also need hard-disk space, both for Win95 itself and for virtual memory (disk space used as a replacement for memory). If you don't have enough space, now's the time to do some housecleaning. Win95 needs 10MB for a minimal installation and 40MB for the entire bundle.

The amount of necessary swap space depends on how much RAM

your computer contains. Microsoft says Win95 requires 14MB of RAM and swap space, so you'll need 10MB of swap space on a 4MB machine and 6MB on a machine with 8MB of RAM. (The math doesn't add up, but Microsoft says you need "hardly any" swap space on a 16MB computer.)

Don't worry about the intricacies of setting up swap files under Win95. You just have to make enough hard-disk space available; Win95 takes care of allocation.

When you're sure your computer has sufficient resources, are you ready to install Win95? Only if you like to live dangerously. You should do several things before going any further:

- Back up the files on your hard disk. If you have a tape drive, back up the entire disk. If something goes really wrong, you can restore everything you had before. (For a list of essential backup files, see the sidebar "Back It Up," page 26.)
- Edit your AUTOEXEC.BAT and CONFIG.SYS files. Remove all noncritical DEVICE= lines from CONFIG.SYS (those for RAMDRV.SYS and ANSI.SYS,

Technical Editor Hardin Brothers has been working with computers and writing about them for 15 years. He's DOS World's "Reader Forum" and "Shareware Exchange" columnist and also serves as a contributing editor, columnist, and feature writer for Maximize magazine.

for example), or disable them by preceding them with REM.

In this context, critical files are those you absolutely need to get the computer and hard drive running—for example, a disk compressor or a driver program to manage an extra-large hard drive.

Also, remove or “remark out” all memory-resident (TSR) programs loaded in your AUTOEXEC.BAT and CONFIG.SYS files (antivirus programs, for example).

Remember that several DOS utilities, including SUBST.EXE, JOIN.EXE, MODE.COM (sometimes), and PRINT.COM, are TSRs. Disable lines involving all such utilities until you finish installing Win95.

Note that it's not mandatory that you disable every nonessential line that might cause problems before proceeding. If you miss one, Setup will discover the problem and prompt you to remove it. Installation will go more smoothly, however, if you don't have to keep exiting Setup to remove yet another troublesome line from your start-up files.

BACK IT UP

Tape drives make full hard-disk backups easy, but not everyone has one. If you're still using floppy disks, you can make the job of backing up more manageable by restricting the files you copy. At minimum, Microsoft suggests that you make backups of the following files in C:\WINDOWS and C:\WINDOWS\SYSTEM:

- all INI files, which contain initialization information for both Windows and your applications
- all DAT files, which contain registry information used by Windows itself
- all PWL files, the password files used in networked Windows installations
- all DOS-based (real-mode) drivers mentioned in CONFIG.SYS and AUTOEXEC.BAT
- current versions of CONFIG.SYS and AUTOEXEC.BAT: the ones in the root directory of your boot drive
- any proprietary network-configuration files and log-in scripts

If the installation goes awry, you can use these files to recover your current system settings. Of course, these same files will be useful if you don't choose Win95's deinstallation option during setup and discover later that you want to dump it.

—H.B.

● Reboot to ensure that your computer is working perfectly. You don't want to install Win95—or any sophisticated application, for that matter—on an ailing computer.

● Use ScanDisk or a comparable utility to ensure that your hard drive is in good shape. Do a check for file integrity, as well as a surface scan to check each sector of the drive.

● Defragment your hard disks. You've been putting off that task for too long anyway, haven't you?

With plenty of hard-disk space, a reliable backup, no unnecessary device drivers or TSRs running, and a computer that seems free from glitches and gremlins, you're ready to begin installation.

Setting Up

You may run Win95 Setup from DOS 4.0 or later or from any version of Windows. If you run it from DOS, though, Win95 tries to start the Windows version currently on your computer, or it creates and starts a miniature version of Windows and runs it. If you already have Windows on your computer, save yourself a couple of seconds by using it to run Win95's Setup.

To do that, type WIN at the DOS prompt; then, in Program Manager or File Manager, select File/Run

Windows Tip

Getting Personal with Windows

You may personalize Windows 3.1 or Windows for Workgroups 3.11 by substituting a name or a message for the one that appears in Program Manager's title bar:

1. Working in the Program Manager window, highlight your StartUp group, then open the File menu and select New.
2. In the New dialog box, select the Program Item button, and click on OK.
3. In the Program Item Properties box, select Browse, navigate to C:\WINDOWS, scroll through the list of program files (typing P takes you to the first file beginning with that letter), and double-click on PROGMAN.EXE.
4. In Program Item Properties' Description box, type the name you want to assign to Program Manager—for example, MY COMPUTER.
5. To assign the icon of your choice to Program Manager, click on the Change Icon button, scroll through the list of images, and double-click on the one you want to use.
6. Back in the Program Item Properties box, click on OK. Windows creates a new icon and stores it in your StartUp group.

The next time you start Windows, the words MY COMPUTER will appear in Program Manager's title bar.

—Ryan Schmid

and type *drive:SETUP*, where *drive:* is a drive letter, such as A: (your boot floppy drive) or D: (your CD-ROM drive). If you have a choice, install Win95 from a CD-ROM; it includes a few utilities and other programs not on Win95's floppies.

As you'd expect, Setup asks a number of questions before it gets down to work. One of the most vital is the first: In which directory do you want to install Win95? How you answer this question determines the options open to you later on. Setup suggests your current Windows directory; if you take its advice, Win95 takes up less of your free disk space.

In addition, Win95 offers you a helping hand by transferring all settings in your current WIN.INI, SYSTEM.INI, and PROTOCOL.INI files, along with all your Windows 3.x file associations and program groups. Sounds like a pretty good deal at first, doesn't it?

But every piece of silver has a cloudy lining. When you install Win95 on top of an older Windows version, you make a major commitment. You can no longer run your previous Windows version (unless you tell Setup to preserve your old settings so that you have the option of deinstalling Win95 later).

On the other hand, if you install Win95 in its own directory, which requires more disk space, you leave open the possibility of switching between versions of Windows and DOS. (For background on some of the drawbacks of doing that, see the section "Dual-Boot Issues," page 28.)

After you decide where to install Win95, the next question will seem easy: Do you want a Typical, Portable, Compact, or Custom installation? The first choice is best for most computers; the second is best for most notebook computers; and a Compact installation uses the least disk space, just 10MB. My preferred installation is Custom, however, because it lets you tell Win95 exactly which components to install.

Of course, if you omit an important installation feature, you can add it later by running Setup again, choosing Custom, and selecting the new component.

The final question is even easier. Win95, like many other programs, asks for your name and company name, and then a product identification number. You've come to the end of the questions and dodged a bullet or two; now it's time for Setup to go to work.

I see no pitfalls awaiting you in this final part of the installation process, although sitting through two or three reboots is trying. My one bit of advice is to follow Setup's recommendation and create an emergency boot disk. (See the side-

bar "At the Starting Gate," below.) In the CD-ROM version of Win95, Setup zips right along. If you're installing from floppies, plan to spend a sizable chunk of time swapping the 13 upgrade disks in and out of your drive.

Clean-Up Time

Now for the mopping up. During installation, Win95 uses your current AUTOEXEC.BAT and CONFIG.SYS files to create Win95 configuration files. Strictly speaking, these files aren't necessary; Win95 and its underlying DOS 7 run fine without configuration files. But Win95 needs them to install certain DOS-based hardware drivers and to load memory-resident DOS utilities.

AT THE STARTING GATE

During installation, Win95 asks whether you want to create a start-up disk. Unless you're reinstalling Win95 for some reason, let it do so. The start-up disk will serve as your emergency disk if your system ever refuses to boot from your hard drive. Following are the names and functions of the files Win95 places on its start-up disk:

- ATTRIB.EXE lets you change a file's attributes—by making it read-only or hidden, for instance.
- COMMAND.COM is the DOS command processor; without it, you can't get to the C:\> prompt.
- DRVSPACE.BIN lets you access data on hard drives compressed by Microsoft's DRVSPACE.EXE.
- EBD.SYS is another utility essential for your start-up disk.
- EDIT.COM is a text editor, which you'll need for fixing problems in boot-up files.
- FDISK.EXE lets you partition your hard drive.
- FORMAT.COM lets you format disks.
- IO.SYS is one of the operating system's core files.
- MSDOS.SYS is another core operating-system file; in Win95/DOS 7, it's a text file.
- REGEDIT.EXE is a DOS-based version of the Registry Editor.
- SCANDISK.EXE lets you scan disks for problem areas and fix them.
- SCANDISK.INI is the configuration file for SCANDISK.EXE.
- SYS.COM is the system-transfer utility that makes disks bootable.

I suggest that you add several other files, as well: SYSTEM.DAT (the Registry database), CONFIG.SYS, AUTOEXEC.BAT, WIN.INI, SYSTEM.INI, and any CD-ROM or other device drivers you use. Store these files in a subdirectory so that they don't run when you boot the disk. They'll help you restart your system if something keeps it from booting.

—H.B.

Win95 and DOS 7 have assumed responsibility for the other traditional CONFIG.SYS and AUTOEXEC.BAT tasks, such as providing mouse support and disk caching. (See the sidebar "The Winds of Change," below, for a list of alterations Win95 makes to CONFIG.SYS and AUTOEXEC.BAT.)

If you decide to edit Win95's version of CONFIG.SYS or AUTOEXEC.BAT, you must follow a couple of rules:

- Don't include commands for SmartDrive or any other disk-caching program, unless it's written for Win95.
- Don't try to add commands for mouse support; those capabilities are built into Win95 and DOS 7.
- Begin your PATH settings with the entries C:\WIN95DIR;C:\WIN95DIR\COMMAND;, where WIN95DIR is the name of the directory in which you told Setup to install Win95. Don't include the path to other Windows versions in the Win95 PATH.
- Win95 usually prefates unnecessary lines with a REM statement; if

it removes or disables a line in CONFIG.SYS or AUTOEXEC.BAT, don't reenable that line. Setup disabled it for a reason.

If you install Win95 in its own directory so that you can boot a previous version of DOS and Windows, Setup preserves your old versions of CONFIG.SYS and AUTOEXEC.BAT. When you choose a DOS 6.x/Windows 3.x bootup (by pressing F8 when you see the "Starting Windows 95" message), you can use almost all your old settings and utility programs.

Dual-Boot Issues

If you install Win95 on top of an earlier version of Windows, you should encounter few problems with your applications. Most programs written for Windows 3.1 run at least as well under Win95. When you upgrade to 32-bit versions of the same programs, they'll run faster and more smoothly.

But when you install Win95 in its own directory, you'll have to set

up your existing applications to run under Win95. After you do that, though, you aren't necessarily out of the woods. You may find that certain Windows applications run only from Win95, while others may run only under your earlier Windows version.

Win95 isn't at fault; the applications themselves cause the problem. Many larger applications use an EXE file to get things rolling, one or more DLL (dynamic link library) files to provide many of the program's functions, INI files to hold program information, and miscellaneous files for various other tasks. An EXE file must be able to find its auxiliary files.

If an application stores all its files in its own directory or at a specified place in its directory tree, it should run under both versions of Windows. But if it stores information in the \WINDOWS or \WINDOWS\SYSTEM directory, the application will run under only one version of Windows, because it will look into a different directory under each version.

If you're persistent, you can often coax such applications into running under both versions of Windows by figuring out which files they need and copying those files to both sets of Windows directories. If careful detective work doesn't solve the problem, however, the only way to get an application to run under Windows 3.x and Win95 is to install separate copies of the program files for each Windows version.

Obviously, the dual-boot option isn't for the faint of heart or those short on time. If a prompt, painless upgrade is what you want, take the easy way out. Back up, make an emergency start-up disk, keep the possibility of deinstallation open, and set up Win95 right over your earlier Windows. Your batch files may require adjustments, and you may have trouble with 3.x's Recorder macros (Win95 doesn't offer a macro recorder), but otherwise everything should go smoothly. ■

THE WINDS OF CHANGE

Win95 rewrites your CONFIG.SYS and AUTOEXEC.BAT files for its own use. It makes certain changes because more features, including support for mice and disk caches, are incorporated into DOS 7 and Win95. It makes others because new default values render many entries obsolete. These are a few of the changes you can anticipate.

In CONFIG.SYS, expect Win95 to remove or disable lines referring to IFSHLP.SYS, FASTOPEN, RAMBIOS.SYS, SHARE, and SMARTDRV by placing REM at the beginning of these lines. It also removes the commands DOS=HIGH, HIMEM.SYS, SETVER, FILES=, LASTDRIVE=, BUFFERS=, STACKS=, SHELL=, and FCBS= because they're built into the new version of DOS. You can replace some of these lines if you want to increase the values above the new default settings, but you probably won't have to.

In AUTOEXEC.BAT, expect lines referring to DOSSHELL, FASTOPEN, SETCFG, and SHARE to disappear. In addition, if Win95 finds a WIN statement, Setup removes it, because Win95 starts automatically after AUTOEXEC.BAT is processed. The PATH statement is updated so that it points to the \WINDOWS and \WINDOWS\COMMAND directories for Win95, as well as to your old \DOS directory. Finally, if you don't set the variables TEMP and TMP to point to a temporary directory, Windows 95 does it for you.

—H.B.

P C T O O L B O X

The Fix Is In

In which the author, having discovered that "bad" BIOSes and other unforeseen circumstances can wreak havoc with Debug listings, offers several work-around solutions.

by Robert L. Hummel

Over the past three years, my "PC Toolbox" series has brought you programming tips, tools, and techniques for use in your batch programming and everyday computing. During that time, I've fielded numerous questions, comments, and requests from *DOS World's* readers. Regrettably, my crowded schedule doesn't permit me to answer such queries personally, but I'm always on the lookout for trends.

Two have emerged recently: One group of readers is having problems with my Debug scripts, while another wants to get to know assembly-language programming better. I can offer assistance on both fronts.

The Case of the Weird Characters

Several readers have written to say that my Debug script BOXAT.SCR ("A Batch of Windows," *DOS World* #18, November 1994, page 29) produces strange-looking boxes when converted to a COM program. The problem experienced by David Armendrariz of Burney, California,

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is typical. When he runs BOXAT.COM, the top and bottom borders of his boxes are fine, but the vertical borders are a jumble of weird ASCII characters.

When I received the first letter about this problem, I assumed that a typing mistake or failure to follow directions was at fault. I test my programs on a dozen PC systems under all versions of DOS, Windows, and OS/2.

Try as I might, I couldn't duplicate the problem, and I was about to suggest that the reader have someone else check his typing or that he download the listing from the *DOS World* BBS. (See "How to Use This Magazine," pages 62 through 64 in this issue, for more information.)

But after a few more letters filtered in, I knew I had to get to the bottom of things, so I asked one of my correspondents to send along his listing.

To my surprise, the reader's program ran fine on my test machines. Clearly, the problem was with the reader's system—but where? I was still scratching my head when a letter from Robert Thoren of Casa Grande, Arizona, provided a vital clue. He was also getting incorrect results from BOXAT.COM, so he used

his debugger to trace through the program's execution. He discovered that the ASCII character used to create the box's two side borders was being overwritten by an intervening BIOS-function call that moved the cursor.

The rules for BIOS functions say that shouldn't happen. The IBM BIOS manual, for example, states that programmers can assume that "the BIOS interrupt handlers save all registers except AX, the flags, and those registers that return a value to the caller." Some readers have "compatible" BIOSes that don't follow the rules. The PCs involved include Packard Bells and IBM's PS/1 series.

Obviously, I can't fix a bad BIOS, but I've modified BOXAT.SCR to make it more BIOS-proof. If you're having trouble with BOXAT.COM, type in the new BOXAT.SCR (see the first listing, page 30) and assemble it into a COM file by typing this command at the DOS prompt:

```
DEBUG < BOXAT.SCR
```

SAYAT Again, Sam

I don't know whether Leonard Clyde of Carson City, Nevada, has had trouble with BOXAT.COM, but he did write to say that SAYAT.COM

Use the revised Debug script BOXAT.SCR to create the executable program BOXAT.COM, which uses several styles of graphics characters to add borders to on-screen windows. This version of the program sidesteps problems with incompatible BIOSes.

```

N BOXAT.COM
A 100
JMP 0135
DB 0 0 0 0 0 0 0 0
DB DA C4 BF B3 C0 C4 D9
DB C9 CD BB BA C8 CD BC
DB DB DB DB DB DB DB
DB B2 B2 B2 B2 B2 B2 B2
DB B1 B1 B1 B1 B1 B1 B1
DB B0 B0 B0 B0 B0 B0 B0
CLD ;String moves forward
MOV SI,81 ;Read from command tail
CALL 190 ;Read top row
DEC AH ;Make zero-based
MOV [102],AH ;Save it
CALL 190 ;Read left column
DEC AH ;Make zero-based
MOV [103],AH ;Save it
CALL 190 ;Read number of rows
MOV [104],AH ;Save it
CALL 190 ;Read number of columns
MOV [105],AH ;Save it
MOV AH,F ;Get current video mode fn
INT 10 ;BIOS call
MOV [10A],BH ;Save active page
MOV AH,3 ;Get cursor position fn
INT 10 ;BIOS call
MOV [108],DX ;Save it
CALL 190 ;Get window style
DEC AH ;Make zero-based
CMP AH,5 ;Compare to max value
JA 18F ;If above 5, exit
MOV AL,7 ;Figure offset into data
MUL AH ;Table
MOV SI,10B ;Start of table
ADD SI,AX ;+ offset = our characters
MOV DH,[102] ;Get top row
MOV DL,[103] ;And left column
CALL 1AD ;Draw the border
MOV AH,2 ;Move cursor fn
MOV DX,[108] ;To original position
INT 10 ;BIOS call
RET ;Return to DOS
MOV AX,2901 ;Parse command line fn
MOV DI,5C ;Put it here
INT 21 ;DOS call
PUSH SI ;Save SI while used
MOV SI,5D ;Point to argument
SUB AX,AX ;Clear numeric total
LODSB ;Get character
CMP AL,20 ;Quit if space
JZ 1AB
SUB AL,30 ;Convert character to number
AAD ;AL = AH * 10 + AL
MOV AH,AL ;Save running total
JMP 19E ;Get additional characters
POP SI ;Restore register
RET ;End subroutine

MOV [106],DX ;Save cursor position
MOV BH,[10A] ;Get video page
CALL 1F7 ;Draw the top row
SUB CH,CH ;Clear CH
MOV CL,[104] ;Number of rows
DEC CL ;Minus top
DEC CL ;Minus bottom
PUSH CX ;Save counter
MOV DX,[106] ;Get current cursor
INC DH ;Move to next row
MOV [106],DX ;Update it
MOV AH,2 ;Move cursor fn
INT 10 ;BIOS call
MOV AH,A ;Write character to display
MOV AL,[SI] ;AL=character
MOV CX,1 ;CX=number of copies
INT 10 ;BIOS call
MOV AH,2 ;Move cursor fn
ADD DL,[105] ;To
DEC DL ;Last column
INT 10 ;BIOS call
MOV AH,A ;Write character fn
MOV AL,[SI] ;AL=character
MOV CX,1 ;One copy
INT 10 ;BIOS call
POP CX ;Restore counter
LOOP 1C2 ;And loop
INC SI ;Move to next char
MOV DX,[106] ;Get current row
INC DH ;Add one
MOV AH,2 ;Move cursor fn
INT 10 ;BIOS call
LODSB ;Get character in AL
MOV AH,E ;Write TTY fn
INT 10 ;BIOS call
LODSB ;Get character in AL
MOV AH,A ;Write character fn
SUB CH,CH ;Clear CH
MOV CL,[105] ;Number of columns
DEC CX ;Minus left border
ADD DX,CX ;Is new cursor position
DEC CX ;Minus right border
INT 10 ;BIOS call
MOV AH,2 ;Move cursor fn
INT 10 ;BIOS call
LODSB ;Get character in AL
MOV AH,A ;Write character fn
MOV CX,1 ;One copy
INT 10 ;BIOS call
RET ;End subroutine

RCX
11C
W
Q

```

End

("Put Your Text on the Move," *DOS World* #19, January 1995, page 31) leaves a blinking cursor at the top of his screen. To regain control, he has to reboot his system. Leonard can't get GOTOROW.COM, which appears in the same article, to work, either.

I suspect that an incompatible BIOS is causing trouble with SAYAT.COM, too, because the cursor doesn't move, and, like BOXAT.COM, SAYAT.COM uses the BIOS Move Cursor function.

In an attempt to set things straight, I've rearranged the program's code so that it can sidestep problems with a bad BIOS call. Additionally, I found one bug and corrected an instruction my assembler was assembling incorrectly. The revised script appears in SAYAT.SCR (below).

Unfortunately, I don't have a cure for Leonard's problem with

GOTOROW.COM. I'd suggest downloading its script file from the *DOS World* BBS and assembling it as GOTOROW.COM. If the new program doesn't work, a BIOS incompatibility is the likely culprit.

A SAYAT Problem Of Another Color

My earlier fix for SAYAT.SCR won't help G.H. Seesing of San Jose, California, who has trouble of a different sort with SAYAT.COM. On G.H.'s computer, the text being written doesn't assume the color attributes of the screen set by WINAT.COM.

Although G.H. could insert an extra ANSI.SYS sequence to match the screen colors, he finds that solution cumbersome and is looking for a work-around.

I've got a couple. SAYAT.COM uses the DOS Write to File or Device function (INT 21 hexadecimal, AH=

40h) to copy the specified text string to the screen. This function simply transfers text to the screen; it doesn't do anything with the text's color or attribute settings.

If ANSI.SYS isn't loaded, the text written appears in the colors set by WINAT.COM. When ANSI.SYS is loaded, it intercepts all text destined for the screen and monkeys with it, changing its colors and attributes. If ANSI.SYS is set up to display certain colors, those color settings override the screen colors WINAT.COM assigns.

If this is happening to you, one solution is removing DEVICE=ANSI.SYS and all related commands from your CONFIG.SYS file. But if you don't want to do that, try creating SAYATA.COM from SAYATA.SCR. (See the third listing, page 32.)

This version of the program uses the BIOS Write TTY (INT 10 hex, AH=Eh) function to write characters

Use the revised Debug script SAYAT.SCR to create the executable program SAYAT.COM, which positions the cursor and displays a line of text. This version of the program sidesteps problems with incompatible BIOSes.

```
N SAYAT.COM
A 100
CLD                ;String moves forward
MOV AH,0F          ;Get video mode fn
INT 10             ;BIOS call
MOV [016D],BH      ;Save it
MOV CL,[0080]      ;Get command tail length
SUB CH,CH          ;Clear CH
MOV AL,22          ;Scan for double quote
MOV DI,0081        ;Start here
REPNZ              ;Scan
SCASB
JNZ 016C           ;Quit if not found
MOV [016E],DI      ;Save first character's offset
MOV BX,DI          ;Also in BX
REPNZ              ;Scan for close quote
SCASB
JNZ 016C           ;Quit if not found
DEC DI             ;Point to close quote
SUB DI,BX          ;Figure length of string
MOV [0170],DI      ;And save it
SUB AX,AX          ;AX=0
MOV SI,005D        ;Point to row
LODSB              ;Get character
CMP AL,20          ;Quit if space
JZ 013B
SUB AL,30          ;Make digit
AAD                ;AL = AH * 10 + AL
MOV AH,AL          ;Running total in AH
```

```
JMP 012E          ;Loop till done
DEC AH            ;Make zero-based
MOV DH,AH         ;Save in DH
SUB AX,AX         ;AX=0
MOV SI,006D       ;Point to column
LODSB             ;Get character
CMP AL,20         ;Quit if space
JZ 0151
SUB AL,30         ;Make digit
AAD               ;AL = AH * 10 + AL
MOV AH,AL         ;Running total in AH
JMP 0144          ;Loop till done
DEC AH            ;Make zero-based
MOV DL,AH         ;Save in DL
MOV AH,02         ;Move cursor fn
MOV BH,[016D]     ;Video page
INT 10            ;BIOS call
MOV AH,40         ;Write to device
MOV BX,0001       ;STDOUT handle
MOV DX,[016E]     ;String location
MOV CX,[0170]     ;String length
INT 21            ;DOS call
RET              ;Return to DOS
DB 0 0 0 0 0
```

```
RCX
72
W
Q
```

End

Use the revised Debug script SAYATA.SCR to create the executable program SAYATA.COM, which positions the cursor and displays a line of text. This version of SAYAT avoids conflicts with ANSI.SYS color and attribute settings.

```

N SAYATA.COM
A 100
CLD                ;String moves forward
MOV AH,0F          ;Get video mode fn
INT 10             ;BIOS call
MOV [0171],BH      ;Save it
MOV CL,[0080]      ;Get command tail length
SUB CH,CH          ;Clear CH
MOV AL,22          ;Scan for double quote
MOV DI,0081        ;Start here
REPNZ              ;Scan
SCASB
JNZ 0170           ;Quit if not found
MOV [0172],DI      ;Save first character offset
MOV BX,DI          ;Also in BX
REPNZ              ;Scan for close quote
SCASB
JNZ 0170           ;Quit if not found
DEC DI            ;Point to close quote
SUB DI,BX          ;Figure length of string
MOV [0174],DI      ;And save it
SUB AX,AX          ;AX=0
MOV SI,005D        ;Point to row
LODSB              ;Get character
CMP AL,20          ;Quit if space
JZ 013B
SUB AL,30          ;Make digit
AAD                ;AL = AH * 10 + AL
MOV AH,AL          ;Running total in AH
JMP 012E           ;Loop till done
DEC AH             ;Make zero-based

MOV DH,AH          ;Save in DH
SUB AX,AX          ;AX=0
MOV SI,006D        ;Point to column
LODSB              ;Get character
CMP AL,20          ;Quit if space
JZ 0151
SUB AL,30          ;Make digit
AAD                ;AL = AH * 10 + AL
MOV AH,AL          ;Running total in AH
JMP 0144           ;Loop till done
DEC AH             ;Make zero-based
MOV DL,AH          ;Save in DL
MOV AH,02          ;Move cursor fn
MOV BH,[0171]      ;Video page
INT 10             ;BIOS call
MOV CX,[0174]      ;Get string length
MOV SI,[0172]      ;And start
LODSB              ;Get character
MOV AH,0E          ;Write TTY fn
MOV BH,[0171]      ;Video page
INT 10             ;BIOS call
LOOP 0165          ;Loop till done
RET                ;Return to DOS
DB 0 0 0 0 0

RCX
76
W
Q

```

End

to the screen one at a time. Using BIOS functions instead of DOS functions lets SAYATA.COM bypass ANSI.SYS.

Hit by the Debug Bug

I've lost track of the number of *DOS World* readers who have asked over the past few months for help getting started in assembly-language programming. I'm gratified to discover that despite the availability of Visual Basic, C, and other high-level languages, assembly language continues to remain popular.

That makes sense, really. You can try it for free, creating a simple assembly-language program using DOS's Edit (EDIT.COM). Then

you can use Debug (DEBUG.EXE and EXE2BIN.EXE) to assemble the program into a working utility. That's how I wrote my first assembly-language program.

Of course, to write more complex programs, you should invest in a full-featured assembler, such as Microsoft's MASM 5.1 or Borland's TASM. If you own a compiler for another language, you may find an assembler included in the package.

One of the best ways to learn assembly language is the way I did it: by studying the Debug scripts and program listings presented in magazines like this one.

Of course, it helps if the listings contain comments explaining what each instruction does. To help you

along, I promise to annotate the scripts I write for upcoming columns.

For additional information on programming, I suggest that you start with one of these books: Jeff Duntemann's *Assembly Language Step-by-Step* (John Wiley & Sons Inc., \$32.95); Ray Duncan's *Power Programming with Microsoft Macro Assembler* (Microsoft Press, \$39.95); or my own *PC Magazine Assembly Language Lab Notes* (Ziff-Davis Press, \$29.95, with disk).

If, later on, you need a comprehensive reference on the Intel family of processors, you may find that my *Programmers Technical Reference: The Processor and Coprocessor* (Ziff-Davis Press, \$49.95) fills the bill. ■

Searching the Depths Of Your Drive: Part 2

This sophisticated batch-file program finds files by content and displays the results.

by Hardin Brothers

If you missed this feature in the last issue of *DOS World* (#24, November 1995, page 39), let me warn you that you're starting in the middle of a movie. We're in the process of developing a complete batch-file utility that has much of the power of a shareware or commercial program.

This utility, FILEFIND.BAT (see the first program listing, page 34), searches for files by name and content. For example, it can locate all ASC files containing the phrase *Once upon a time*. You can limit the search to the current directory, or you can include all subdirectories beneath the current one.

The search can be case-sensitive or case-insensitive. And the program can display a list of matching files, a roster of matching lines in each file, or the full text of each file it finds.

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To do all that, FILEFIND.BAT uses several advanced batch-file techniques. If you missed last month's installment, you might want to study the following tricks in the first listing:

- The program can shift any word to uppercase with the PATH command (lines 29 to 32).
- It creates a short batch file to return to the current drive and directory once it has finished searching through your hard-disk drive (lines 36 to 45).
- It rigorously checks to make sure that you've entered sensible parameters and then stores your choices in the environment for later use (lines 53 to 106).
- If you don't enter a filename or search text on the command line, the FileFind program prompts for them.
- Accepting and storing user input, shown in lines 110 to 115 and again in lines 120 to 132, depend on peculiarities of both the DOS FC command and the DOS DATE command, two places you probably wouldn't think of looking if you wanted to create a powerful batch file.

A final note: This program won't run under Windows 95's DOS 7, which doesn't recognize the slash in FOR-IN-DO, such as that in lines 48 and 49 of the main batch file.

More Tricks and Files

I explained each of these tricks in detail in the last issue. This month, we'll finish FileFind with three shorter batch files.

To understand what's happening, we have to start at the end of last month's listing. FILEFIND.BAT really has five jobs:

- It collects command-line options and any direct input from the user and stores what it finds in the environment.
- It collects a list of directories containing files with correct names.
- It launches a new copy of COMMAND.COM and gives it enough information to run a new batch file, _FFIND.BAT, in each of the search directories.
- It runs a third batch file, _FSHOW.BAT, to display the results of the search.
- It then cleans up by deleting temporary files and environment variables.

FILEFIND.BAT locates files anywhere on your hard disk, searching by filename or content. Line numbers followed by the first colon in each line are for reference only; don't type them in. Be sure to change line 34, if necessary, to set **FF_PATH** equal to a directory in your path.

```

1 : @ECHO OFF
2 : GOTO START
3 :
4 : :HELP
5 : CLS
6 : ECHO %FF_SELF% searches for files based on names
7 : ECHO and text in the files. To use:
8 : ECHO.
9 : ECHO %FF_SELF% [/H] [/S] [/I] [/C] [/L] [/T]
   [filename] ["text"]
10 : ECHO.
11 : ECHO    /H displays this screen
12 : ECHO.
13 : ECHO    /S searches current directory
   and all subdirectories
14 : ECHO.
15 : ECHO    /I uses case-insensitive search
16 : ECHO.
17 : ECHO    /C displays matching filenames and
   count of matches
18 : ECHO    /L displays matching filenames and
   matching lines
19 : ECHO    /T displays full text of matching files
20 : ECHO.
21 : ECHO [filename] is name of file(s) to search
22 : ECHO.
23 : ECHO ["text"] is text to search for.
   Text must be in
24 : ECHO quotation marks and must be last parameter on
25 : ECHO the command line
26 : GOTO END
27 :
28 : :START
29 : SET FF_PATH=%PATH%
30 : PATH %0
31 : SET FF_SELF=%PATH%
32 : SET PATH=%FF_PATH%
33 : :: Change the following to a directory in
   your path:
34 : SET FF_PATH=C:\BAT
35 :
36 : :: Create a way to get back to this drive
   and directory.
37 : ECHO E100 43 44 20 > FF_TEMP.SCR
38 : ECHO N%FF_PATH%\FF_RET.BAT >> FF_TEMP.SCR
39 : FOR %%C IN (RCX 3 W Q) DO ECHO %%C >>
   FF_TEMP.SCR
40 : DEBUG < FF_TEMP.SCR > NUL
41 : DEL FF_TEMP.SCR
42 : CD >> %FF_PATH%\FF_RET.BAT
43 : CD \
44 : CD >> %FF_PATH%\FF_RET.BAT
45 : CALL %FF_PATH%\FF_RET.BAT
46 :
47 : :DISPATCH
48 : FOR %%C IN (/1) DO IF !%%C==!/ GOTO PARAM
49 : FOR %%C IN (/1) DO IF !%%C==" GOTO TEXT
50 : IF NOT !1==! GOTO FNAME
51 : GOTO CHECK_PARAMS
52 :
53 : :BAD_PARAM
54 : ECHO.
55 : ECHO Parameter /%P% is not recognized
56 : ECHO.
57 : PAUSE
58 : GOTO HELP
59 :
60 : :PARAM
61 : :: Read one parameter in %1, then SHIFT and
   loop back
62 : FOR %%C IN (/1) DO SET P=%%C
63 :
64 : FOR %%C IN (H h) DO IF !%%C==!%P% GOTO HELP
65 : IF !%P%==!? GOTO HELP
66 : FOR %%C IN (c C i I l L s S t T) DO IF
   %%C==%P% GOTO PARAM_%%C
67 : GOTO BAD_PARAM
68 :
69 : :PARAM_C
70 : SET FF_OUT=C
71 : GOTO END_PARAM
72 : :PARAM_I
73 : SET FF_CASE=/I
74 : GOTO END_PARAM
75 : :PARAM_L
76 : SET FF_OUT=L
77 : GOTO END_PARAM
78 : :PARAM_T
79 : SET FF_OUT=T
80 : GOTO END_PARAM

```

I covered the first step in detail in the last issue, so this month we'll focus on steps 2 through 5. Step 2 begins at the label **:START_SEARCH** on line 135 of the first listing. If the user wants to search both the current directory and its subdirectories, the program may need a few moments to make a list of target directories.

So, in line 139, the program displays a message to explain what it's doing. If the search focuses only

on the current directory, the process is so fast that it doesn't have to display the message. The list of directories is stored in a temporary file called **FF_LIST.TXT**.

Note that if you use **SET DIRCMD** in your **AUTOEXEC.BAT** file to preset parameters and switches for the **DIR** command, you must be sure you haven't included the **/P** switch. **FILEFIND.BAT** may not work properly when searching large directories if the **/P** switch is active.

Because the **DIR** command creates the list, each line will start with the word *Directory*. We'll send each line to **COMMAND.COM** for execution, so we need a batch file called **DIRECTOR.BAT** to parse this list and extract the actual directory. Lines 143 to 145 create that batch file.

Then the last line of **DIRECTOR.BAT** calls the program **FFIND.BAT**, which searches for matching files in a single directory.

```

81 : :PARAM_S
82 : SET FF_SUBS=/S
83 :
84 : :END_PARAM
85 : SHIFT
86 : GOTO DISPATCH
87 :
88 : :FNAME
89 : SET FF_NAME=%1
90 : SHIFT
91 : GOTO DISPATCH
92 :
93 : :TEXT
94 : :: Get text input (first character must be a
    quote mark)
95 : SET FF_TEXT=
96 : :TEXT2
97 : IF !%1==! GOTO DISPATCH
98 : SET FF_TEXT=%FF_TEXT% %1
99 : SHIFT
100 : GOTO TEXT2
101 :
102 : :CHECK_PARAMS
103 : IF !%FF_OUT!==!! SET FF_OUT=C
104 : IF !%FF_NAME!==!! GOTO GET_NAME
105 : IF !%FF_TEXT!==!! GOTO GET_TEXT
106 : GOTO START_SEARCH
107 :
108 : :GET_NAME
109 : ECHO.
110 : ECHO Enter name of file (may contain wildcards):
111 : FC CON NUL /LB1 /N | DATE | FIND "1: " >
    FF_TEMP.BAT
112 : ECHO @SET FF_NAME=%5 > ENTER.BAT
113 : CALL FF_TEMP.BAT
114 : DEL FF_TEMP.BAT
115 : DEL ENTER.BAT
116 : GOTO CHECK_PARAMS
117 :
118 : :GET_TEXT
119 : ECHO.
120 : ECHO Enter search text. Text MUST start and
    end with
121 : ECHO a quotation mark:
122 : FC CON NUL /LB1 /N | DATE | FIND "1: " >
    FF_TEMP.BAT
123 : ECHO @ECHO OFF > ENTER.BAT

124 : ECHO :LOOP >> ENTER.BAT
125 : ECHO IF !%5==! GOTO END >> ENTER.BAT
126 : ECHO SET FF_TEXT=%FF_TEXT% %5>> ENTER.BAT
127 : ECHO SHIFT >> ENTER.BAT
128 : ECHO GOTO LOOP >> ENTER.BAT
129 : ECHO :END >> ENTER.BAT
130 : CALL FF_TEMP.BAT
131 : DEL FF_TEMP.BAT
132 : DEL ENTER.BAT
133 : GOTO CHECK_PARAMS
134 :
135 : :START_SEARCH
136 : :: Create list of possible directories:
137 : IF !%FF_SUBS!==!! GOTO SS_1
138 : ECHO.
139 : ECHO Creating directory list ... Please wait...
140 : :SS_1
141 : DIR %FF_NAME% %FF_SUBS% | FIND "Directory" >
    %FF_PATH%\FF_LIST.TXT
142 : ECHO EXIT >> %FF_PATH%\FF_LIST.TXT
143 : ECHO @ECHO OFF > %FF_PATH%\DIRECTOR.BAT
144 : ECHO SET FF_PLACE=%2>> %FF_PATH%\DIRECTOR.BAT
145 : ECHO CALL _FFIND >> %FF_PATH%\DIRECTOR.BAT
146 :
147 : COMMAND /E:5000 < %FF_PATH%\FF_LIST.TXT > NUL
148 : CALL %FF_PATH%\_FFSHOW.BAT
149 :
150 : :: Now clean up
151 : CALL %FF_PATH%\FF_RET.BAT
152 : DEL %FF_PATH%\FF_RET.BAT > NUL
153 : DEL %FF_PATH%\DIRECTOR.BAT > NUL
154 : DEL %FF_PATH%\FF_LIST*.TXT > NUL
155 : SET FF_OUT=
156 : SET FF_TEXT=
157 : SET FF_SUBS=
158 : SET FF_CASE=
159 : SET FF_NAME=
160 : SET FF_SELF=
161 : SET FF_PATH=
162 : SET FF_TEMP=
163 : SET P=
164 : :END

```

End

The third step is taken care of in line 147: FILEFIND.BAT starts a new copy of COMMAND.COM. It sends any output to the NUL device to keep the screen neat. This appears to be a simple command, but because FF_LIST1.TXT contains a list of directories, and because DIRECTOR.BAT and then _FFIND.BAT will be executed in each directory, this one line does a great deal of work.

When this single line finishes, a file called FF_LIST2.TXT contains a

list of all files found in the search. Then, for step 4, FileFind runs another batch file, _FFSHOW.BAT, to display the results (line 148). Finally, in lines 151 to 163, FileFind cleans up everything before it exits. Sounds simple, doesn't it?

The Auxiliary Files

The file _FFIND.BAT (see the second listing, page 36, top) executes once in each subdirectory containing at least one file matching the search

filename. For example, if you're looking for *.ASC files in the current directory and all its subdirectories, _FFIND.BAT executes in every directory containing an ASC file. Its job is to create a list of files containing the text for which you're searching.

_FFIND.BAT is both short and powerful. It starts by displaying the name of the subdirectory it's searching. Line 7 uses FOR-IN-DO to pass each possible filename to the

_FFIND.BAT looks for matching files in a single directory. Line numbers and first colons are for reference only; don't type them in.

```

1 : @ECHO ON
2 :
3 : :: _FFIND.BAT searches for matching files
4 : :: Filenames are saved in FF_LIST2.TXT
5 :
6 : ECHO Searching %FF_PLACE% > CON
7 : FOR %%F IN (%FF_PLACE%\%FF_NAME%) DO FIND /C %FF_CASE% %FF_TEXT% %%F >> %FF_PATH%\FF_LIST1.TXT
8 : FIND /V ": 0" <%FF_PATH%\FF_LIST1.TXT | FIND ":" | SORT >> %FF_PATH%\FF_LIST2.TXT
9 : DEL %FF_PATH%\FF_LIST1.TXT

```

End

FIND command with its /C option, which generates a count of matching lines in each file.

The result is stored in a file called FF_LIST1.TXT, which contains entries like this:

```
----- C:\MYDIR\MYFILE: 46
```

The numeral at the end of each line is the number of times FIND located the search text in the file.

Line 8 massages this information. It begins by getting rid of lines ending in zero, which deletes information about files not containing the search text. The results are sent back to FIND to delete lines not containing a colon at all, which are blank.

Then the output goes to SORT to put the filenames in alphabetical

order; the results are sent to a new text file, FF_LIST2.TXT, for storage.

_FFIND.BAT's last line deletes FF_LIST1.TXT, which was just a temporary file used in a single directory.

Although it's only a few lines long, _FFIND.BAT gets a lot done. It does most of its work with the DOS FIND command, which is a powerful search tool.

Once _FFIND.BAT is done, the file FF_LIST2.BAT contains a list of all files matching the user's criteria for name, text, and location. FileFind has only two tasks left. The first is to call another auxiliary batch file, _FFSHOW.BAT (see the third listing, below), to display files in the format the user specifies.

_FFSHOW.BAT is longer than _FFIND.BAT and more difficult to under-

stand, but it really doesn't have too much to do. Some of its complexity is the result of the three output options: The user can decide to display a list of files, the matching lines in each matching file, or the complete text of each matching file. FileFind stores the user's choice in the environment variable FF_OUT.

The first step in _FFSHOW is to create a small program called FF_PAUSE.COM if the user wants to view file lines or complete file text. FF_PAUSE works much the same as the DOS PAUSE command, waiting for the user to press any key before continuing; the PAUSE command won't work while the output is displayed, because it reads standard input redirected during the

_FFSHOW.BAT offers the user three output options for matching files. Line numbers and initial colons are for reference only; don't type them in.

```

1 : @ECHO OFF
2 :
3 : :: _FFSHOW.BAT displays matching files, lines,
   and text
4 :
5 : IF %FF_OUT%==C GOTO DISPATCH
6 : ECHO E!00 29 C0 CD 16 29 C0 CD 21 > FF_TEMP.SCR
7 : ECHO N%FF_PATH%\FF_PAUSE.COM >>FF_TEMP.SCR
8 : FOR %%C IN (RCX 8 W Q) DO ECHO %%C >>FF_TEMP.SCR
9 : DEBUG < FF_TEMP.SCR > NUL
10 : DEL FF_TEMP.SCR
11 :
12 : :DISPATCH
13 : FIND ":" < %FF_PATH%\FF_LIST2.TXT > %FF_PATH%\FF_LIST1.TXT
14 : GOTO SHOW_%FF_OUT%
15 :
16 : :SHOW_C
17 : :: Display each file found and the number of hits
18 : CLS
19 : MORE < %FF_PATH%\FF_LIST1.TXT > CON
20 : GOTO END
21 :
22 : :SHOW_L
23 : :: Displays filename and then all matching lines
24 :
25 : ECHO. >> %FF_PATH%\FF_LIST1.TXT
26 : DATE < %FF_PATH%\FF_LIST1.TXT | FIND "----" >
   %FF_PATH%\FF_LIST3.TXT
27 : ECHO EXIT >> %FF_PATH%\FF_LIST3.TXT
28 :
29 : ECHO @ECHO OFF > %FF_PATH%\ENTER.BAT
30 : ECHO IF !%5==! GOTO END >> %FF_PATH%\ENTER.BAT
31 : ECHO CLS >> %FF_PATH%\ENTER.BAT
32 : ECHO CALL %FF_PATH%\_FFSTRIP %5 >>
   %FF_PATH%\ENTER.BAT
33 : ECHO ECHO %6 Matching Lines in %5 >>
   %FF_PATH%\ENTER.BAT
34 :
35 : SET P=%PROMPT%
36 : SET PROMPT=
37 : COMMAND /E:5000 /CFOR %%C IN (1 2) DO PROMPT
   FIND %FF_CASE% %FF_TEXT% %%FF_FILE%% $B MORE $G
   CON $ _ | FIND /V "PROMPT" >>%FF_PATH%\ENTER.BAT
38 : SET PROMPT=%P%

```

display routine. FF_PAUSE's only advantage is that it ignores standard input and reads the keyboard directly.

After creating FF_PAUSE.COM, _FF_SHOW.BAT branches to a routine that displays output in the desired format. The first routine (lines 16 to 20) is by far the simplest. It merely displays the information stored in FF_LIST1.TXT, one screen at a time.

The routine displaying matching lines in each file, which begins in line 22, does much more work. FF_LIST1.TXT contains the name of every matching file and the number of matches in each. Somehow _FFSHOW must extract each filename, find the matching lines, and display them.

To do that, it first runs the entire list through DOS's DATE command. By doing so, it adds the words *Enter new date (mm-dd-yy):* to the beginning of each line.

The FIND command in line 26 removes excess and blank lines and stores the result in FF_LIST3.TXT. The next line ends that file with the EXIT command.

_FFSHOW executes each line in FF_LIST3.TXT. To do so, it must create a batch file called ENTER.BAT,

because the first word of each line is *Enter*. It does so in lines 29 to 43.

Most of ENTER.BAT is easy to understand. It receives the name of each file in its fifth command-line parameter. Unfortunately, each filename is stored with a trailing colon that must be deleted. ENTER.BAT calls the final auxiliary program, _FFSTRIP.BAT (see the fourth listing, page 38), to remove that colon.

One of the lines in ENTER.BAT must read, in part:

```
FIND "text" %FF_FILE% | MORE > CON
```

But it's impossible to send that line to ENTER.BAT with the ECHO command, because the bar and greater-than signs will be interpreted immediately. Lines 35 to 39 show how to work around this problem, and together make up the last advanced batch-file trick in the program. To create the line, the program starts a new copy of COMMAND.COM and tells it to create the line as its prompt, then redirect the prompt to the file.

Because of a peculiarity of COMMAND.COM, the program has to run the PROMPT command twice. That's the job of the FOR-IN-DO part of the

line. One of the lines of output will be the PROMPT command itself. The FIND command in line 37 removes it from the output.

After ENTER.BAT is finished, _FFSHOW starts a new copy of COMMAND.COM and sends it FF_LIST3.TXT as a set of commands.

Each line of the text file runs ENTER.BAT, which uses DOS's FIND command to display matching lines. The last line of FF_LIST3.TXT is the EXIT command, which returns control to _FFSHOW.BAT.

Once you understand the routine for displaying matching lines, you should have little trouble with the last part of _FFSHOW.BAT, which displays the complete text of each matching file. Its version of ENTER.BAT is slightly different, but the distinctions should be fairly easy to grasp.

Making Improvements

FILEFIND.BAT and its three auxiliary batch files together create an acceptable utility program for locating files that are lost on your hard disk. In some ways, I like FileFind better than the TS Text Search program in The Norton Utilities, because FileFind's output is more flexible.

```
39 : SET P=
40 :
41 : ECHO ECHO Press any key to continue >>
    %FF_PATH%\ENTER.BAT
42 : ECHO FF_PAUSE >> %FF_PATH%\ENTER.BAT
43 : ECHO :END >> %FF_PATH%\ENTER.BAT
44 :
45 : COMMAND /E:5000 < %FF_PATH%\FF_LIST3.TXT
46 : DEL %FF_PATH%\FF_LIST3.TXT
47 : GOTO END
48 :
49 : :SHOW_T
50 : :: Displays filename and then entire text
51 : ECHO. >> %FF_PATH%\FF_LIST1.TXT
52 : DATE < %FF_PATH%\FF_LIST1.TXT | FIND "----" >
    %FF_PATH%\FF_LIST3.TXT
53 : ECHO EXIT >> %FF_PATH%\FF_LIST3.TXT
54 :
55 : ECHO @ECHO OFF > %FF_PATH%\ENTER.BAT
56 : ECHO IF !%5==! GOTO END >>%FF_PATH%\ENTER.BAT
57 : ECHO CLS >>%FF_PATH%\ENTER.BAT
58 :
```

```
59 : SET P=%PROMPT%
60 : SET PROMPT=
61 : COMMAND /E:5000 /CFOR %%C IN (1 2) DO PROMPT
    MORE $L %%5 $G CON $ _ | FIND /V "PROMPT" >>
    %FF_PATH%\ENTER.BAT
62 : SET PROMPT=%P%
63 : SET P=
64 :
65 : ECHO ECHO. >> %FF_PATH%\ENTER.BAT
66 : ECHO ECHO Press any key to continue >>
    %FF_PATH%\ENTER.BAT
67 : ECHO FF_PAUSE >> %FF_PATH%\ENTER.BAT
68 : ECHO :END >> %FF_PATH%\ENTER.BAT
69 :
70 : COMMAND /E:5000 < %FF_PATH%\FF_LIST3.TXT
71 : DEL %FF_PATH%\FF_LIST3.TXT
72 :
73 : :END
```

End

In its current form, however, FileFind is less than perfect. If you want to improve it, I'd suggest combining all four batch files into a single program. I always get nervous when one batch file runs another because it's easy to lose the second batch file somewhere on the hard drive, delete it accidentally, or alter it without understanding exactly how it interacts with the main batch program.

I'd also suggest adding some method of ending the display of matching lines or complete file text once you've found the file you're looking for. One of FileFind's weaknesses is that it insists on displaying the lines or the text of every matching file, whether you want to see everything or not.

But solving that problem won't be easy, because normal keyboard input is disabled while _FFSHOW runs ENTER.BAT. You'll have to be creative, and perhaps create your own COM program with Debug, to

_FFSTRIP.BAT deletes trailing colons from filenames. Line numbers and initial colons are for reference only; don't type them in.

```
1 : @ECHO OFF
2 :
3 : :: _FFSTRIP.BAT removes colon from end of filename
4 :
5 : SET FF1=%1
6 : SET FF_FILE=
7 :
8 : :LP
9 : IF %FF1%==: GOTO END
10 : SET FF2=%FF1%
11 : FOR %%C IN (/%FF2%) DO SET FF1=%%C
12 : FOR %%C IN (/%FF2%) DO IF %%C%FF1%==%FF2% SET FF_FILE=%FF_FILE%%C
13 : GOTO LP
14 : :END
```

End

stop ENTER.BAT after you've found the file you're seeking.

The third improvement I'd make would be to add some glitter and glamour to the program's output. As presented here, FileFind's output is dull. That's fine for a simple utility, but most programs today do a lot more to make their output interesting.

Even if you don't need a utility to find lost files, you can still learn a lot from FileFind and its auxiliary programs. FileFind contains several advanced batch-file programming techniques, few of which are widely known. I'm sure you can find a home for some of them in the next complex batch file you write for your own system. ■

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MAKING THE SWITCH TO WIN 95

Six Reasons to Love The New Windows

If you like Windows 3.x—or even if you don't—chances are you'll appreciate Win95's winning ways.

by Robert L. Hummel

If you took Microsoft's hype at face value, you'd have to conclude that the introduction of Windows 95 dwarfs all other events in recorded history. I don't see things quite that way, but I'll grant that it does include several improvements over Windows 3.x that will benefit average users: advances such as the ability to run more programs more smoothly, and enhancements such as rewritten code that will make ordinary computing go faster and force new programs to share processing time more harmoniously.

Microsoft's ads pitch other virtues, as well. The new Windows, they claim, is at once simpler to

learn, easier to use, more customizable, and more sophisticated. Fact or fiction? The only way to judge, of course, is to visit Win95 and find out for yourself. (Also see the accompanying sidebars for comments from a selection of *DOS World* authors on their Win95 experiences.) Here are a half-dozen reasons why I think it's a journey worth making.

#1: The New Look

When you run Win95, you'll notice right away that the scenery has changed—enormously and for the better. Gone are Program Manager and the assemblage of group boxes overflowing with icons. Instead, Win95 greets you with an uncluttered landscape: a few icons and a taskbar with a couple of buttons. (See the accompanying screen shots, "Before" and "After," page 41.)

As with previous versions of Windows, pointing and clicking is still the best mode of transportation, at least initially. In a short time, you can learn your way

around and carry out the few tasks essential to running Windows and your applications. Double-clicking on My Computer opens a window to your drives, printers, and Control Panel; left-clicking on Start takes you down the road to your programs, help, and system shutdown. Right-clicking? Well, if you haven't already grown used to doing it in programs such as Excel, you may well learn to like it. It can come in handy for changing a program's properties.

But if you hate reaching for the right mouse button, don't worry: Alt+Enter still opens a Properties dialog box. Many of the other old keyboard shortcuts work, as well: Alt+Tab still cycles you through active tasks, for example, and Alt+F4 still closes a program window. You'll find plenty of new keyboard shortcuts, too: Ctrl+Esc opens the Start menu, F3 brings up a Find utility, and F2 lets you edit the label for an item on your desktop.

The best shortcuts, though, are the icons Microsoft calls *shortcuts*.

Contributing Editor Robert L. Hummel is the author of PC Magazine Programmer's Technical Reference: The Processor and Coprocessor, Data and Fax Communications, and PC Magazine Assembly Language Lab Notes (Ziff-Davis Press). He also serves as Maximize magazine's Windows editor and "Technically Speaking" columnist.

You can drag or right-drag entries for programs and data files from deep within your hard-disk structure, plopping icons for them right onto the desktop. Just double-click on a shortcut to run its program or to start a program and its associated file.

#2: Wordly Wisdom

Speaking of files, you don't have to worry about assigning them short but memorable names anymore. Long filenames—available on Macs and many network operating systems for quite some time—have finally made it to Windows.

Long filenames are a boon to those who have more to say about their files than they can squeeze into an eight-character name and three-character extension. Under

Win95, filenames may contain as many as 255 characters, including some previously illegal characters, such as spaces and punctuation marks. Instead of naming a file GR9501.DOC, for example, you can now call it GROSS RECEIPTS JAN 95.DOC.

Long filenames aren't without their problems, however. If you take your files to a computer that isn't running Windows 95, you can't take the long names with you. You'll see only the Windows-generated equivalent of the old eight/three formula—names such as GROSS~01.DOC.

And if you alter the file, you may lose the long name altogether. The same problems can occur if you access your files in a DOS application or use your previous DOS version.

#3: Respect for Your Elders

Long filenames aside, the number of incompatibilities that exist between Win95 and earlier Windows versions is small—where both software and hardware are concerned. That's because, despite the hoopla, Win95 is simply an upgrade to Windows 3.x. In fact, Win95 identifies itself internally as Windows 4, responding with this message when you type VER at the command line:

Windows 95. [Version 4.00.950]

Programs that follow accepted programming conventions will get along fine in the new environment. Existing DOS and Windows applications should continue to run as they did under Windows version

WIN95 DOES DOS

DOS aficionados should cheer the arrival of Windows 95, because it provides much stronger support for DOS-based applications than its predecessor did. First of all, DOS programs are simply more stable running under Win95 than they were under Windows 3.1.

For instance, now that I have Win95 on my Pentium, I can use my DOS-based communications program to download electronic mail in the background while continuing to work in other applications—something I would never attempt with Windows 3.1. And, if I encounter a troublesome program, Win95 lets me recover with aplomb. I just press Ctrl+Alt+Del to bring up a dialog box containing a list of all open DOS and Windows applications; then I highlight which ones to shut down. A click, and the deed is done; I don't have to restart Windows.

Another welcome feature is that Win95 lets you add a toolbar to a DOS window. The procedure couldn't be easier. Right-click on the program's shortcut (or minimize the program to the taskbar and right-click), then click on the Toolbar option. The next time you run that program in a window, you'll see the toolbar. Click on the appropriate button to mark, copy, or paste information. Or you can change the appearance of text and even choose to display text in a TrueType font, which looks the same on screen as it does in a printout.

Although I pride myself on keeping up with the industry, I still have several DOS applications I'm not ready to abandon. Win95 lets me use those applications with greater confidence than before.

—Jack Nimersheim

THE GOOD, THE BAD...

I have mixed feelings about Windows 95. I'm not thrilled with the new look, because it makes a Windows machine feel too much like a Macintosh. And I miss a few of the utilities I'd grown used to—SysEdit (the system editor) and the macro Recorder, for example.

But I'm impressed with the internals of this new operating system. When I ask it to print, read, and write files and open and close programs, it seems to respond faster than Windows for Workgroups 3.11, the last version of Windows 3.x.

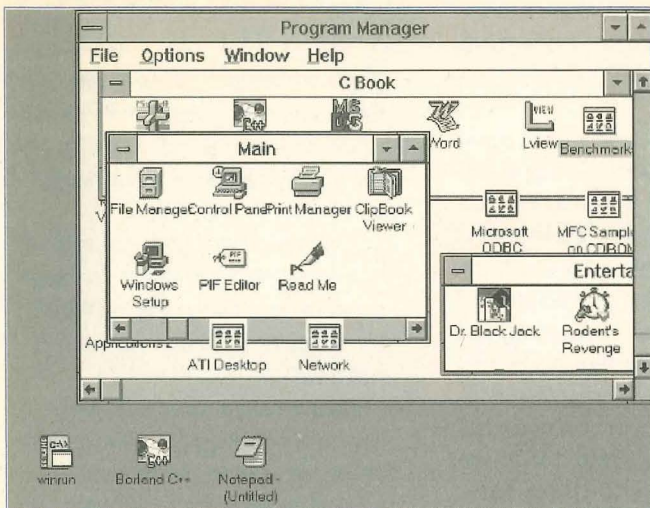
For instance, the program I use to manage my e-mail compresses and updates its data files about three times faster in Win95 than it does in Windows 3.11.

Just as important is Win95's improved method of handling resources. Although I used to regularly run out of resources with Windows 3.x, I've never had that problem with Win95, even after opening more applications, and more powerful applications, than I could in Windows 3.11.

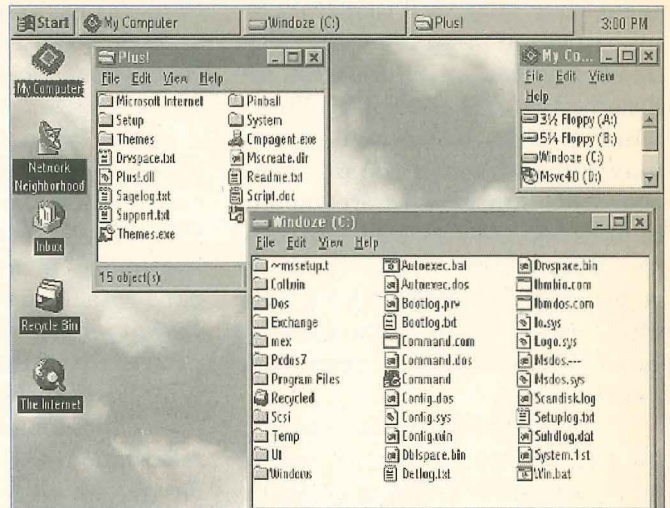
I imagine I'll get used to the new interface in time and perhaps come to like it, just as I did Windows 3.x. In the meantime, I'll continue to appreciate Win95's internal enhancements, its true 32-bit operating system, and its preemptive multitasking.

Windows 3.x led me to OS/2 just to get the performance I demanded of my computer. Win95, I believe, will lead me back. Under the hood, it's a more efficient operating system.

—Hardin Brothers



Before: Program Manager and an assortment of group boxes in Windows 3.1 make for a cluttered, hard-to-read screen.



After: Windows 95 cleans up the screen, leaving only a few icons, a taskbar with buttons, and organized lists.

3.x—perhaps better. Device-driver programs for your old hardware should also work as they did under

Windows 3.x. If you have an orphaned CD-ROM drive, for example, you can continue to use its DOS driver under Windows 95.

#4: Performance Benefits

Not only can you take your applications with you, but certain modules of those applications will also be more efficient, because Microsoft has rewritten the code for several Windows 95 functions. You've probably heard a lot about this new "32-bit" code, some of which first appeared in Windows 3.0.

Among Windows 95's 32-bit functions are those for disk and file access and the portions of Windows that handle printing, graphics display, and network access. Even older applications that use these services will reap a slight increase in performance.

In addition, certain driver programs, such as those for mice and some CD-ROM drives, were rewritten entirely and now run slightly faster than their older versions. But there's a more meaningful benefit. Because these new drivers reside almost completely in extended memory, they consume only a small amount of memory below the 1MB mark. That means more space for your DOS and Windows applications in the lower 640K.

#5: Yielding the Right of Way

Win95's 32-bit code brings something else to the party, as well: the promise of a spate of new programs that know how to behave when they're sharing processing time with other 32-bit programs.

Under Windows 3.x, your ability to run multiple programs, or tasks, smoothly depends on the various applications' willingness to cooperate. Before Windows 3.x can switch from one 16-bit Windows application to another, the application in control of your computer's processing chip must yield. If the application won't yield—either because it's hogging CPU time to make its performance look better or because it has crashed—Windows 3.x is powerless to remedy the situation.

Under Windows 95, the situation doesn't change for 16-bit applica-

IT'S ALL IN THE GAME

I'm convinced. When it comes to games, Windows 95 is my pick for the present, and for the future, too. Microsoft's new PC operating system frees up precious RAM for DOS titles, makes it easier to play almost everything I've tried, and, best of all, promises to bring the speed of DOS action games to the Windows desktop, where it belongs.

For my money, one of Win95's best traits is the ability of its new drivers to reside in extended memory. The old drivers used to take up lines in my AUTOEXEC.BAT and CONFIG.SYS files and hog so much memory below the 1MB mark that I had to resort to using boot disks to start most DOS games. Without drivers for my CD-ROM, sound card, and RAM-eating network, I've managed to toss those disks.

The second bit of good news has nothing to do with DOS, but everything to do with a quick fix. Software developers can finally write video instructions straight to the hardware, circumventing the graphical interface. The result? Action games that run as fast under Windows as they do in DOS.

You have to see the speed of Win95 titles such as Pitfall Harry to believe it's possible. Everyone will be climbing on this bandwagon and producing Win95 versions of some old—and many new—fast-action, arcade-style games. I can't wait.

—Gregg Keizer

tions; they must still cooperate for multitasking to go smoothly. New 32-bit applications, in contrast, are designed to cede control to Win95, which decides which applications may run and how much processor time each may have before another application gets its turn. Because this feature gives Win95 the ability to preempt any 32-bit application and forcibly gain control of the processor, it's called *preemptive multitasking*.

If all this sounds too esoteric, imagine trying to interrupt a large print job or a disk search while using Windows 3.1. Windows 3.1 can't respond to your keyboard or mouse input. Win95, in contrast, can grab control whenever it needs to, checking to see whether you want to do something else.

#6: Less Is More

It sounds as though Win95 brings you more of everything, doesn't it? That's not quite true, however. Although you get more characters in a filename, more efficient file and

disk access, and smoother multitasking, there's one very important thing you get fewer of: "out of memory" messages.

Under Windows 3.x, such messages pop up frequently when you try to run several programs at a time. The problem isn't always a shortage of memory—it often happens when you have megabytes of RAM to spare—but a shortage of what Microsoft calls *system resources*. Windows 3.x allocates only two 64K areas in memory for important information such as icons, bit maps for window elements (button, bars, and so on), and other graphics and program miscellany. If either of these areas fills up, as often happens when you run several sophisticated applications, Windows 3.x collapses like a house of cards.

Microsoft hasn't eliminated this problem in Windows 95, but it has alleviated it, by moving a number of components out of the 64K system-resource blocks into other areas of memory. This frees up enough space that you can load

TAKE YOUR TIME

Overall, I'm not impressed with Windows 95. Sure, there's technological prowess there, but nothing compelling. I suppose that's the key word for me: *compelling*.

Why would I want to upgrade to this new operating system? Not one application I'm now using requires Win95. My computer world won't fall apart if I wait a while.

When it comes down to it, you'll have to weigh the pull of time against the desire to avoid spending money. In time, all your favorite applications will be upgraded to offer support for Win95's new features (long filenames chief among them). Or you may buy a new computer, in which case you won't really have a choice. But one thing's for certain if you upgrade your existing system: Windows 95 needs megabytes of hard-disk space and memory, which will cost you more than the \$89 you see in the ads. This is a decision well worth putting off.

—Dan Gookin

DOS Tip

Getting Selective with DELTREE

DOS 6.x's DELTREE can be ruthless. It will remove a directory and all its subdirectories, as well as any files they contain—even hidden, system, or read-only files. If you like the convenience of using the wildcards * and ? to delete groups of directories—but worry that you might blow away some important ones—protect yourself by giving each of those directories both a name and an extension. For example, you might store your vital spreadsheet files for January in a directory called C:\QUATTRO\SPREAD.JAN. You could then issue a command such as this one:

```
DELTREE C:\QUATTRO\*.
```

to get rid of directories named C:\QUATTRO\MISC and C:\QUATTRO\nOTES.

If you want DOS to delete the files without prompting you for permission, use this command instead:

```
DELTREE /Y C:\QUATTRO\*.
```

Don't forget the period! If you do, DOS will delete all subdirectories and files. Also, be aware that older applications may not permit you to use a directory name that includes an extension.

—Russell Stamets

nearly twice as many applications under Win95 as you can under Windows 3.x.

Back and to the Future

Adding significant performance improvements while preserving compatibility with previous versions of a program is a tall order for any software project. For a product as complex as an operating system with a graphical user interface, the task is even more challenging. I'd say that Microsoft has done a good job of preserving ties to the old Windows while forging ahead.

Change is difficult, and you may not take to the new Windows immediately, but I'm willing to bet it will grow on you. What DOS and Windows user couldn't learn to love a cleaner desktop, less cryptic filenames, quicker disk access, and room to run more programs? ■

SETTING UP A NETWORK

It Pays to Get Connected

If you have more than one computer at home or at work, it's time to think about a simple network for easy access to files and peripherals.

by Doug Lowe

Networking used to be a difficult proposition, best reserved for specialists in white coats with pocket protectors. But thanks to Artisoft's **LANtastic** (800-846-9726), putting together a small DOS network isn't a major undertaking. It's no more complicated than, say, installing a modem or other card in your PC, plugging in a printer or mouse cable, and setting up a new software program. If you can do those things, you can install a network.

Although LANtastic isn't your only option for building a small, inexpensive network (one popular alternative is Novell's **Personal NetWare**; 800-453-1267), it's the most common choice for peer-to-peer networking. (Artisoft also offers a 32-bit version of LANtastic that lets you set up a dedicated file server without getting into the

complexities of a heavy-duty NetWare or Windows NT installation.) True, Windows 95 includes built-in networking, but then what do you do with computers that can't run Windows?

For older, DOS-only computers, LANtastic is the ideal choice. If most of your computers currently run Windows 3.1 but can't run Windows 95 efficiently (perhaps they're 386 or 486 systems with only 4MB of memory), LANtastic will let you add networking features without upgrading to Win95. (See the sidebar "When You Should Choose Other Software," page 44, for a rundown on situations that favor Windows 95 as your network choice.)

One of the advantages of using LANtastic instead of Windows 95 is that you don't have to spend your life savings on memory. LANtastic does steal away a bit of memory, of course, but with DOS-only computers, accessing the network requires a mere 27K of RAM for software drivers. To make a printer or disk drive available to the network, the total memory require-

ment jumps to 53K. (Fortunately, LANtastic can make use of your computer's upper-memory area; the RAM requirement will be a problem only if your system's upper memory is already maxed out.)

A network can change your computing life as you know it in any number of ways:

- **Freedom from sneakernet file sharing.** "Sneakernet" means copying files to a disk, putting on your shoes, and carrying the disk to your coworker's computer. With a network, you can share files among computers through the net—in your stocking feet, if you like.

- **Peripheral benefits.** You don't have to buy a printer for every PC; instead, several users can share a single printer. What's more, if one person's printer breaks down, he or she can access another's printer via the network.

- **Staying current.** If several users regularly access the same data, figuring out who has the most recent version of a file is quite a problem. With a simple network, you can keep a single

Contributing Editor Doug Lowe is DOS World's "Q&A" columnist and the author of more than 20 computer books, including Networking for Dummies (IDG Books Worldwide). He also serves as a feature writer for Maximize magazine.

copy of the file on one of the computers, and anyone who needs the file can access that copy over the network.

• **Better communication.** With a network, you can use electronic mail to write memos or notes and "live chat" to exchange messages with other users. That means no more phone messages lost under desk clutter.

Your best bet in networking is to start small. If your office has ten computers, you don't have to network them all at once; connect two or three of them at first. That will give you a chance to learn the ins and outs of installing network cards and cables, setting up the LANtastic software, and using the network. Once your small network is up and running, you can expand it to include other computers.

Setting up a small network is a manageable job, if you take it one step at a time. Here are six tips to help you get up and running in no time:

1. Learn some basic networking jargon. I wish I could tell you to

WHEN YOU SHOULD CHOOSE OTHER SOFTWARE

Although LANtastic offers a number of advantages for setting up a small, DOS-based network, it might not be the best choice in the following situations:

- **All your computers are powerhouses, with 486 or better processors and 8MB of RAM or more, and you've just upgraded them all to Win95.** With Win95's built-in network features, you don't need an add-on network product such as LANtastic.
- **Most of the computers you want to network can run Win95; a few can't, but you don't need to share their printers or disk drives.** In that case, Windows 95 may be the best solution still. Microsoft offers a DOS-only version of its Windows network that lets DOS users access the network; it just doesn't let DOS-only computers share their files or printers on the network.

Note that all major network programs for PCs support the same network hardware, so if you build your network with LANtastic and decide later to switch to something else, you won't lose your hardware investment.

—D.L.

ignore the technobabble that goes along with networking, but you'll have to learn a little vocabulary to purchase the right hardware and software. Listed here are a few of the more important terms:

• **Server.** A networked computer offering either part of its disk space or a printer (or both) to the

network so that other computers can access it.

• **Dedicated server.** A computer whose sole purpose is to be the network server. A dedicated server uses a special operating system, such as Novell's NetWare; you can't run MS-DOS or Windows programs on it. You don't need a dedicated server to network just a few computers.

• **Ethernet.** Industry-standard hardware for creating small local-area networks. Whenever you buy network cards and cables, make sure you see the term *Ethernet* on the box.

• **Peer-to-peer network.** A type of network in which any user can offer disk space or a printer to the network while continuing with other work. In other words, your computer can act as a server so that other users can access your disk or printer, but you can continue to use your computer to work in Word, Lotus 1-2-3, or some other program. LANtastic is a peer-to-peer network.

2. Make a shopping list. For each computer system you want to network, you'll need the following materials:

DOS Tip

Limited Access

Watching your kids learn to use a PC can be a fulfilling experience. But if they're sharing your system, your sense of pride may be tempered by anxiety. Fortunately, you can limit the amount of damage their young fingers can wreak by controlling the directories to which they have access.

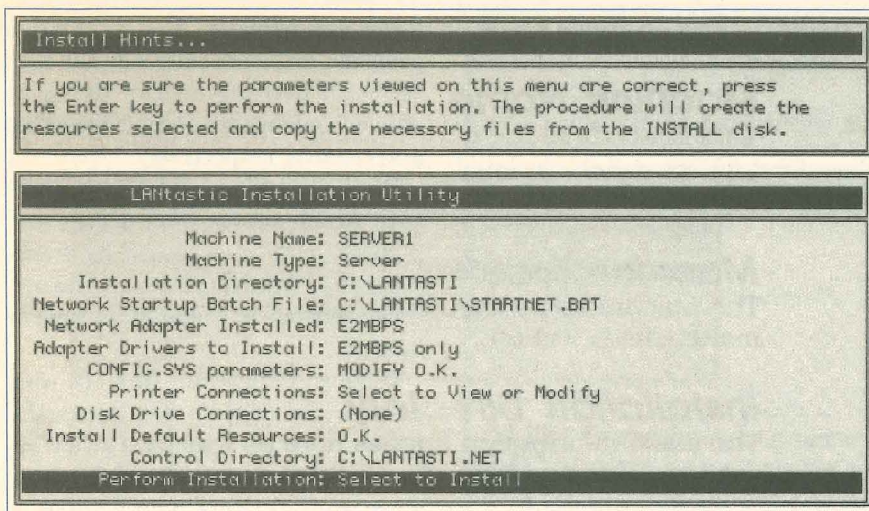
For example, assume that your system has a single hard disk set up as drive C and you want to restrict the kids to the subdirectory C:\GAMES. To let them work in C:\GAMES and any of its subdirectories—but not in other parts of drive C—type these commands at the beginning of their session:

```
SUBST D: C:\GAMES
ASSIGN C=D
```

The SUBST command creates a virtual drive (drive D, in this case), an alias for the C:\GAMES subdirectory. With this command in effect, typing DIR D:\ produces a list of the files stored in C:\GAMES. The second command uses ASSIGN to redirect all drive C references to drive D. Together, the two lines restrict access on drive C: to \GAMES. That means you can let the kids play to their hearts' content, secure in the knowledge that they can't damage your data.

To remove the new drive assignments, just reboot your system.

—Robert L. Hummel



Typical LANTastic Install screen. This machine has been designated the network server.

• **A network interface card to install in each computer.** You can easily spend several hundred dollars per card, but for small networks, don't hesitate to use inexpensive cards. For the last network I installed, I purchased cards for \$39 each. When you buy network cards (assuming you have a 386 or later PC), make sure the cards are 16-bit; they're much faster than the older 8-bit cards. And make sure you can set up the card through software, so that you don't have to open the computer's case if you need to change one of the card's settings. Neither of these features is expensive; the \$39 cards I just mentioned included both features.

• **Networking software, such as LANTastic 6.0.** Each computer will need its own copy of LANTastic (about \$80 apiece).

• **Cable.** For thin coax (coaxial), you need one fewer cable than the number of computers. For 10baseT, you need one cable for each computer, plus a 10baseT hub for hooking up all the computers. See the sidebar "Cable? What Do I Know About Cable?" (right) to determine which type is right for you.

As a ballpark estimate, figure about \$125 to \$150 per computer for LANTastic software, a network card, and cable.

CABLE? WHAT DO I KNOW ABOUT CABLE?

When building a network, you must decide between two popular cabling choices: *thin coax*, also known as *10base2*, and *unshielded twisted pair*, also called *UTP* or *10baseT*. The arrangement of computers in the network will dictate what type of cable you use; thin coax and UTP use totally different wiring schemes.

UTP requires that each computer be wired to a central device, called a *hub*. The hub adds a bit of expense to the network (about \$150), but simplifies the wiring, especially in larger networks. Each network card and hub port contains a light indicating whether the cable connection is working, which makes cable trouble easy to spot. UTP is similar to phone cable, with modular jacks known as RJ-45 connectors. But it isn't *identical* to phone cable, so don't try to build a network with phone cable.

With thin-coax cable, you connect each computer to the next like links in a chain. To network three computers, you need two cables: one to connect the first computer to the second, the other to connect the second to the third. You must attach a special connector, called a *terminator*, to the the cables at both ends of the network. 10base2 is similar to the coax cable used for cable television, but it's not identical, so don't try to use TV cable to build a network.

Which cable is better? The answer depends on your situation and your preferences. I like to use coax when all or most of the computers are in the same room, where it's a simple matter to string cable from one computer to the next behind desks or along walls. If workers have private offices and the cable must be installed in walls and through the ceiling, I prefer UTP.

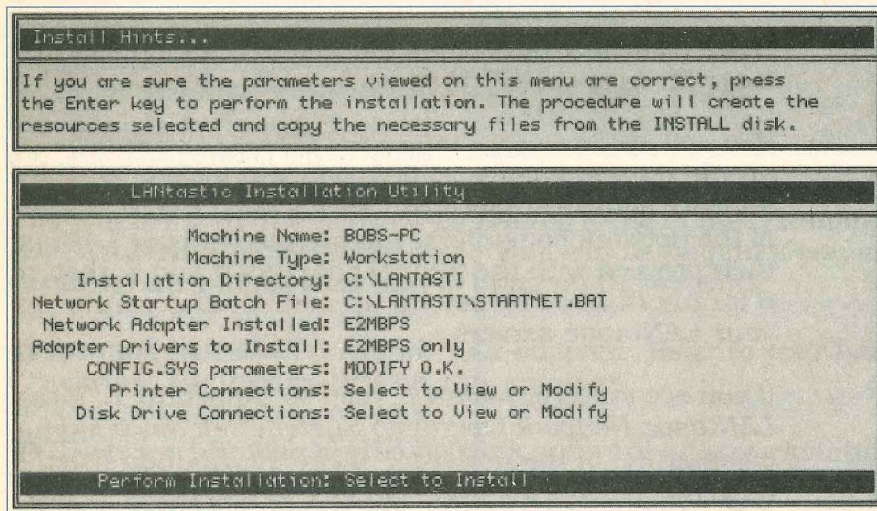
Another advantage of UTP over coax is that if one of the cables breaks, only the computer attached via that cable is affected. In a coax network, all computers are affected if any one of the cables breaks.

Whatever type you decide to use, purchase preassembled cables with connectors already attached. Thin-coax cable usually comes in 10-, 25-, 50-, and 100-foot lengths. If you opt for UTP, install modular fixtures in the wall; then use a short, preassembled "patch cable" to connect each computer to the wall jack.

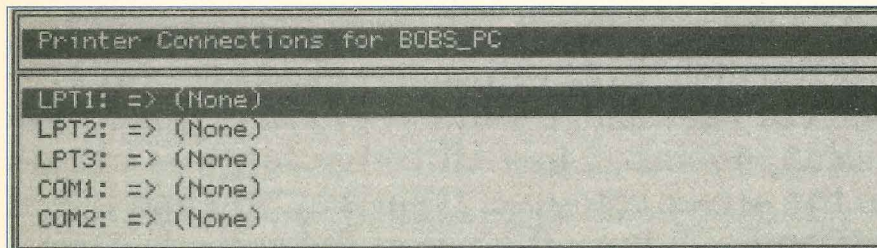
—D.L.

One of the cheapest ways to get your network going is to purchase a two-computer LANTastic starter kit (about \$250), which includes two copies of the network software, two network cards, and cabling.

3. Don't forget to back up your system. Installing the LANTastic software usually goes without incident, but I've learned from experience to expect the worst. It's always a good idea to do a complete system backup before making any major changes. Then, if something goes wrong during installation, you have system disks to fall back on.



This machine (Bobs-PC) has been designated a workstation. Note the Install Hints help window.



Setting up a printer connection in LANTASTIC. If Bob's system already has a printer attached, the network server's printer should be connected to the LPT2 port.

4. Set up the network software right the first time. When you install LANTASTIC, it asks you for certain settings for each computer. If you need to, you can change these settings later on—but it's easiest if you take the time to set up the network right in the first place. (See the first and second screen shots, page 45 and top of this page, respectively, for two typical setups.) Here's what you'll need to know:

- **A machine name.** Each computer in your network should have a unique name; most people choose either the user's name or the computer's location.
- **Whether the computer you're setting up will be a workstation.** Also, whether each computer can access the network without sharing its own disk drives or printers; whether it can access a server; and whether it can access the network and share its own printers and disks.

- **Printer connections.** This option lets a workstation computer access a server's printer.
- **Disk connections.** This option lets a workstation access a server's disk drives.

As part of the installation process, LANTASTIC creates a batch file named STARTNET.BAT, containing the commands to connect the computer to the network and access any shared disk drives and printers. STARTNET.BAT usually resides in a directory called C:\LANTASTI.

To access the network automatically whenever you start your computer, simply add the following command to your AUTOEXEC.BAT file:

```
CALL C:\LANTASTI\STARTNET.BAT
```

5. Set up the network for shared printers and disks. (See the third screen shot, above.) You can easily set up LANTASTIC to share direc-

tories and printers. The installation program automatically sets up each server's printer and C: drive as shared resources, named @PRINTER and C-DRIVE, respectively.

Plus, the software lets you indicate which server disk drives and printers can be accessed by workstations. Again, you can change these settings at installation time or later on.

If your computer has its own printer, be sure to designate the network server's printer as LPT2. To access the network printer from your applications, you'll have to reconfigure those programs to print to LPT2. The procedure for doing that varies, so you'll have to check each package's documentation to find out how.

If your computer doesn't have its own printer, the network printer will be LPT1, so you won't have to do anything special to access it.

Shared disk drives are assigned their own letters. If you're using a computer with a single hard drive (C:) and you want to access the network server's disk drive, use drive D.

The specific drive letter the network software uses may vary, depending on how the network is set up and whether your computer is using more than one disk drive, a CD-ROM drive, or a compression program such as DriveSpace or Stacker. Type the command NET SHOW at the command prompt to find out which networked disk drives and printers are available.

6. Always check the cable first. My final tip for easy network setup is to remember that 90 percent of all network difficulties are cable problems. If you can't access one of the computers via the network (it can't "see" you and you can't "see" it), the first thing to suspect is the cable connection between the systems. Check it again; replace any suspect cable with a spare. And cross your fingers—you should be connected without a glitch. ■

DRESSING UP SPREADSHEETS

Drab Doesn't Do It

If you haven't discovered spreadsheet publishing yet, you may be boring your audience. Here are 11 tips that'll help you jazz up your number crunching with graphics and type.

by Daniel Gasteiger



What-you-see-is-what-you-get (WYSIWYG) printouts in DOS? You bet. In fact, the "spreadsheet publishing" capabilities available to you in all WYSIWYG versions of Lotus 1-2-3 and Quattro Pro for DOS rival the features you'll find in any Windows spreadsheet program. (WYSIWYG emerged in DOS spreadsheets years before GUI operating systems became popular.)

For example, if you use Lotus 1-2-3 for DOS and your printer is reasonably capable, it's fairly easy to apply the following 11 publishing techniques to spruce up your spreadsheet projects.

In no time, you'll be able to vary your fonts, add lines and shading, and even produce a 3D shadow effect. The results are sure to grab the attention of your customers, clients, coworkers, managers, fellow financiers, and anyone else you need to impress.

Daniel Gasteiger is a free-lance writer and business-computing consultant in Lewisburg, Pennsylvania. He also serves as Maximize magazine's "Zen and the Art of Spreadsheet Maintenance" columnist.

#1: Add Drama with Fonts

The first screen shot (below) shows a typical and rather dull spreadsheet. Fortunately, the person who built it already knew about numeric display formats, so at least you can see that the numbers represent dollar amounts.

But this spreadsheet could grab someone's attention faster if it had a more dramatic title. You can produce a simple boldface title in Lotus 1-2-3 from the keyboard as follows:

1. Type a colon (Shift+semicolon) to activate the WYSIWYG menu.

2. Select Format/Bold/Set. Specify cell A1 as the cell to format. (Either type the address or press Escape and use arrow keys to move the cell pointer to cell A1.)

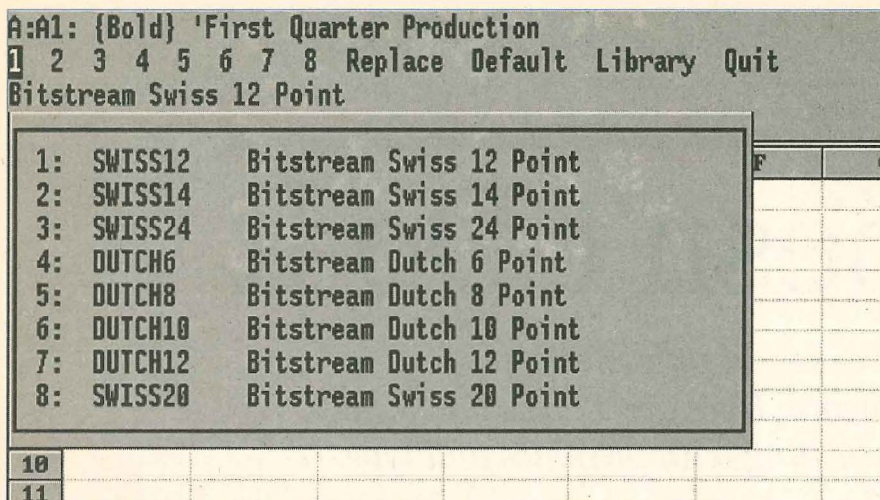
3. Press Enter.

#2: Jack Up the Type Size

When boldface isn't bold enough, increase the font size—and even change the typeface of your entries. Select :Format/Font and choose an alternative typeface by typing a number 2 through 8. (See the second screen shot, page 48, top.) By default, 1-2-3 uses font 1 of the eight offered for every cell in the

A	A	B	C	D	E
1	First Quarter Production				
2					
3		Jan	Feb	Mar	Total
4	Lisa	37,839	39,634	47,047	\$124,520
5	Jane	39,284	42,929	45,865	\$128,078
6	Joel	26,339	25,274	29,841	\$81,454
7	Linda	21,980	18,469	17,684	\$58,133
8	Total	\$125,442	\$126,306	\$140,437	
9					

Dull spreadsheets are common in business computing, but yours don't have to conform to the norm. We'll transform this one with careful use of eye-grabbing graphics and type styles.



Lotus 1-2-3's WYSIWYG :Format/Font menu offers eight typface and size combinations. You can exchange any combination for a pairing of your own choice.

A	A	B	C	D	E
1	First Quarter Production				
2					
3		Jan	Feb	Mar	Total
4	Lisa	37,839	39,634	47,047	\$124,520
5	Jane	39,284	42,929	45,865	\$128,078
6	Joel	26,339	25,274	29,841	\$81,454
7	Linda	21,980	18,469	17,684	\$58,133
8	Total	\$125,442	\$126,306	\$140,437	
9					

Even with a huge title and boldface column heads and row labels, totals and their supporting values run together in a typical spreadsheet.

spreadsheet. Once you select a new typeface and size combination, Lotus 1-2-3 asks which cell or range of cells to change. In this case, you might select font 3 and apply it to the title in cell A1.

#3: Swap Type Styles

If the eight items on the :Format/Font menu don't include a typeface and size you like, swap the selections for other combinations:

1. Select :Format/Font/Replace.
2. Choose any combination you know you won't want to use in your spreadsheet; then select a replacement typeface.
3. Enter a point size.

The second screen shot (top) shows a :Format/Font menu in which I've

made such a substitution. Normally, font 8 is 12-point Xsymbol. Note that when you replace a typeface/size combination, 1-2-3 applies the new selection to all spreadsheet entries currently using that item number. For example, any cells formatted as font 8 before I replaced Xsymbol with Swiss20 were accordingly transformed.

#4: Double Up to Add Pizzazz

The third screen shot (above) shows our spreadsheet with a replacement typeface/size combination for the title (24-point Swiss), and with other labels set in boldface. But despite boldface column headers and row labels, the totals on their own don't stand out well from other numbers. Would adding dividing lines help?

Try it: Add doubled lines above the month totals by selecting :Format/Lines/Double/Top, and specifying range B8..D8. Add doubled lines to the left of the line totals by selecting the sequence :Format/Lines/Double/Left and specifying range E4..E7. You can even tell 1-2-3 to draw an outline around a range (:Format/Lines/Outline and :Format/Lines/Double/Outline), and you can draw lines around each cell in a range (with option sequences :Format/Lines/All and :Format/Lines/Double/All).

#5: That 3D Look

One very dramatic special effect is to make a range or a label appear to rise above the surface of the spreadsheet.

For example, you can pop your spreadsheet's title off the page as follows: First, put an outline around the title by selecting the sequence :Format/Lines/Outline and indicating range A1..E1. Then put a shadow behind it by selecting the options :Format/Lines/Shadow/Set and once again indicating range A1..E1. The result appears in the fourth screen shot (opposite).

#6: Cool in the Shade

To further distinguish this spreadsheet's data from the totals, you can shade the data range. Sure, the :Format/Shade commands beckon, but consider applying a backdrop color to the cells instead.

On most monitors, *shading* appears as tiny dots in the background, making it difficult to read the text on top. Background *colors*, on the other hand, usually appear solid and can help overlying entries stand out.

Similarly, in many cases, a printed color appears as a smooth gray background, while shading appears as dots. For example, I like to use a yellow background to highlight cells; in printouts, they appear in a light shade of gray.

To shade the sales data in this sample spreadsheet, select the sequence :Format/Color/Background,

Text Background Negative Reverse Quit Specify the background color for a range						
A	A	B	C	D	E	F
1	First Quarter Production					
2						
3		Jan	Feb	Mar	Total	
4	Lisa	37,839	39,634	47,047	\$124,520	
5	Jane	39,284	42,929	45,865	\$128,078	
6	Joel	26,339	25,274	29,841	\$81,454	
7	Linda	21,980	18,469	17,684	\$58,133	
8	Total	\$125,442	\$126,306	\$140,437		
9						
10						

For dramatic impact, add background color to range B4..D7. The :Format/Color menu above the spreadsheet reveals other display elements whose colors you can control.

and choose Yellow. Next, indicate range B4..D7 and press Enter. (See the fourth screen shot, above.) If setting a background color results in lousy display and printing effects (it depends on your monitor, video driver, and printer), revert to the default color and try the :Format/Shade options instead.

#7: Customize Those Canned Formats

The latest version of Lotus 1-2-3 includes several predesigned spreadsheet-publishing formats. To access them, select :Named/Style and browse the menu. Apply style 1 (Title) to produce yellow text on a blue background. Style 3 (Labels) produces large, bold, black text on a yellow background.

This collection of canned styles, applied together, produces a rather unattractive display. You can change the definition of any or all of the named styles, however, to suit your own sense of aesthetics.

To create a named style, find a cell containing all the formatting elements that make up that style. For example, you might want to regularly enlarge spreadsheet titles and wrap them in a box with a shadow. That involves making four trips through the menus: one to set the title in boldface, a second to change the title's typeface and

size, a third to outline an area containing the title, and a fourth to create the shadow.

To speed up the procedure for future formatting, create a title in a big, bold typeface on a shadowed background. (Leave off the outline for now.) Put the cell pointer in the title cell and select the sequence :Named/Style/Define. Choose a canned style you wouldn't normally use—such as Title—as the style to replace, and press Enter to indicate that the current cell holds the replacement style. Press Enter to leave the style name and title in place, and type in a description.

Later, when you want to apply your newly defined style to another

title in the spreadsheet, select :Named/Style/1, and indicate a range that encompasses the title—as well as several extra cells to the right so that the enlarged title will fit within the shadowed box the style creates. Then use the option sequence :Format /Lines/Outline to put an rule around the title area. By defining your own title style, you'll reduce future formatting to two trips through the menus.

#8: Illustrate with In-Sheet Graphs

Don't miss your chance to illustrate the labels and numbers in your spreadsheets. Some readers just won't get your message until they see it in pictures. In fact, some won't even read your printouts if they don't include charts to emphasize the numbers. Once you create a graph, it's a simple matter to place it in the worksheet near the data it represents.

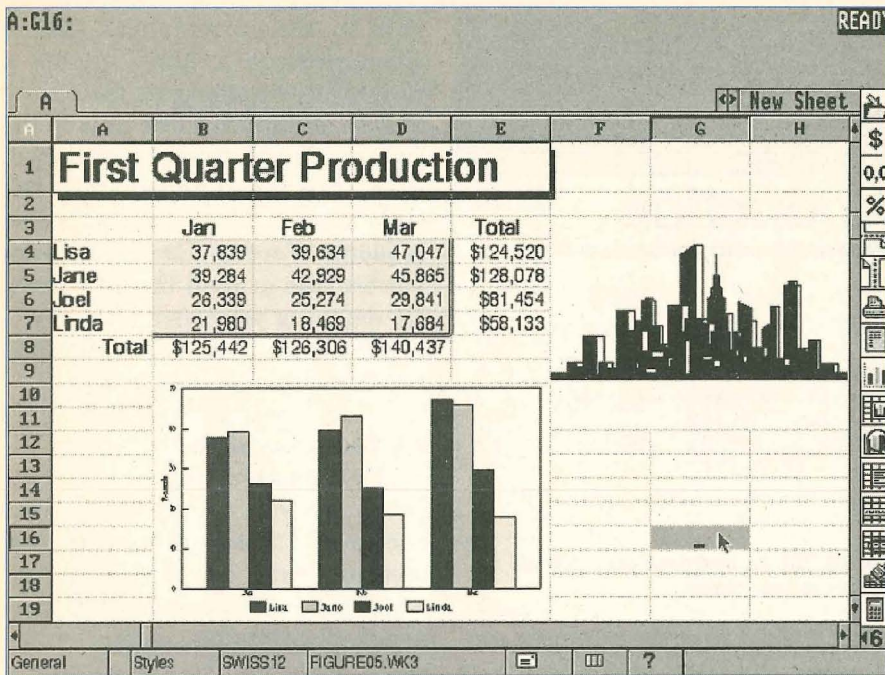
To graph the data in the sample spreadsheet as shown in the fifth screen shot (page 50), select the sequence /Graph/Group, and specify B3..D7 as the range to graph. From the resulting menu, select Rowwise and then Type Bar to set up a bar graph. Finally, select Options/Legend /Range, and specify A4..A7. If you plan to enter more data and create other graphs, save the graph settings by select-

BRINGING WYSIWYG TO AN OLD 1-2-3

What? No menu appears when you type a colon in Lotus 1-2-3 for DOS? If you have an older version of 1-2-3, it may well be that WYSIWYG isn't "attached" yet to your spreadsheet program. That's not an issue with newer editions of 1-2-3, because WYSIWYG attaches automatically. But although older 1-2-3 releases—2.3, 2.4, 3.4, and 4—also include WYSIWYG capability, you must activate it manually:

- To attach WYSIWYG in Release 2.x, press the slash key and select Add-In and then Attach. Select WYSIWYG.ADN from the list of add-ins that appears.
- In Releases 3.4 and 4, hold down the Alt key and press F10. Then choose Load and select WYSIWYG.PLC from the ensuing list. In Release 4, you can also load WYSIWYG by pressing the slash key and selecting Tools. WYSIWYG will appear on the resulting menu.

—D.G.



Clip art and a bar graph make this spreadsheet a standout.

ing Quit from the Options menu, and then Name/Create. Enter a name—Q1 Sales, perhaps—and then select Quit to return to the spreadsheet. (If you aren't familiar with 1-2-3's graphing capabilities, experiment with them before you try this example.)

To place a named graph in the sheet, press the colon key (:) and select Graph/Add/Named. Choose the name you want from the ensuing list, and then specify a range to hold the graph. I designated B10..E19 for the worksheet in the fifth screen shot (above) so that the image would fit into this graphic; you should probably choose a larger area so that your graph is easier to read in a printout. Remember that a printed page shows more of the worksheet than the area that appears on the display.

#9: Add Zip with Clip Art

Perhaps the least appreciated of 1-2-3's spreadsheet-publishing features is its ability to display clip art. The down side is that clip-art images must be in metafile (CGM) format, so the more common PCX and TIF libraries aren't useful here. The up side is that 1-2-3

comes with its own small collection of images you can incorporate easily into your worksheets.

To add a clip-art image, select :Graph/Add/Metafile. At the resulting prompt, edit the path so it points to the 1-2-3 program directory. (If 1-2-3 is in the \LOTUS directory on drive C, the path should read C:\LOTUS.) Press Enter. Then press F3 to produce a full-screen listing of available images.

Move the highlight to the name of the image you want to include—you may have to explore a bit before you find one you like—and press Enter. Then specify a range to hold the

image. I chose SKYLINE.CGM as the image and specified range F3..H11, producing the display shown in the fifth screen shot (left).

If you don't like a graphic you've added to your worksheet (either chart or clip art), get rid of it by selecting :Graph/Remove and specifying any cell in the range holding the image. Select Quit to return to the spreadsheet.

#10: Winning the Paper Chase

There's a trick to printing a spruced-up spreadsheet so that what you see on screen is what you get on paper—but the good news is that the trick is easy to learn. Just use the WYSIWYG menu instead of the slash menu when you initiate printing. First, select :Print/Range/Set, and specify the area to print. Adjust any other page-layout or printer settings you need to, and select Go.

#11: Simple Is Snappy, Busy Is Bad

One final tip about spreadsheet publishing: Don't overdo it. With varied fonts and type sizes, shading, lines, shadows, charts, and clip art, a spreadsheet can get pretty busy. Use too many effects and you risk burying the information deep within your design masterpiece. Solid presentations take planning, careful selection of a few effects, and the inclusion of ample white space, to give readers places to rest their eyes. ■

DOS Tip

The Truth About Free Disk Space

If you use Undelete with Delete Sentry protection, many programs, including DIR and Windows' File Manager, ignore the space occupied by the deleted files stored in the hidden \SENTRY directory. As a result, they report more free space than is actually available. To find out how much disk space is really free, run CHKDSK and look at the entry labeled "Bytes available on disk." CHKDSK correctly determines the amount of free disk space, because it takes the \SENTRY files into account.

—Ken Johnson

MOUSE ROUTINES

Mousing Around In QBasic

Create more flexible and more professional QBasic programs by teaching them to get along with mice.

by Hardin Brothers

Not so many years ago, there were two kinds of computer programs: those that bragged that they included mouse support and those that bragged that they didn't waste disk space and memory on such frivolity. Today, it's a rare program that doesn't include mouse support—unless it's a program written in QBasic. Although almost all of today's commercial, shareware, and freeware programs provide mouse support, QBasic doesn't. In fact, some programmers claim that you can't use a mouse in a QBasic program.

In one sense, they're right: QBasic doesn't include built-in mouse commands, but that doesn't mean you can't write QBasic programs that use a mouse. It simply means you have to work at it—or you can use the QBasic mouse rou-

tines shown here to make your programs mouse-worthy.

The Inner Mouse

I'm sure you've cleaned enough computer mice to understand how they work. A hard rubber ball rolls as you move the mouse over your desk, turning a sensor inside the unit. The device converts the sensor's movements to electrical signals and sends them to the computer, where your system decodes them and uses them to display a moving cursor on your screen.

But *how* does a program make use of a mouse? Does it read every signal and move the cursor around the screen? Not at all. A program called a *mouse driver* does the hard work, detecting movements and clicks and translating them into values programs can use. To find out what the mouse is doing, your program has to "talk" to the mouse driver.

To get a DOS-based program to communicate with a mouse driver, the first step is ensuring that a driver and a mouse are installed. Then your program must make requests of the mouse driver by

calling Interrupt 33 hexadecimal. (An interrupt is similar to a GOSUB or CALL in QBasic, but instead of working within a program, it lets one program call another, without worrying about where the second program is loaded in memory.) Although QBasic doesn't provide a way to call your mouse driver or interrupts directly, my demonstration program, MOUSDEMO.BAS (page 52), shows how to do both.

Structural Analysis

To understand what's going on in MOUSDEMO.BAS, it helps to break it into its four component parts: QBasic declarations, a mouse initialization module, three demonstrations of mouse capability, and a collection of subprograms. When you're typing in the listing, you can ignore the first section, the DECLARE statements at the top of the program. QBasic supplies these lines for you as you type in the program's subroutines and function. (If you prefer, download a copy of the listing from the *DOS World* BBS; see "How to Use This Magazine," pages 62 through 64 in this issue, for details.)

Technical Editor Hardin Brothers has been working with computers and writing about them for 15 years. He's DOS World's "Reader Forum" and "Shareware Exchange" columnist and also serves as a contributing editor, columnist, and feature writer for Maximize magazine.

MOUSE ROUTINES

As written, the demonstration program **MOUSEDEMO.BAS** includes 12 mouse services. The lines highlighted in white make up the demo portion.

```

DECLARE SUB DEMO3 ()
DECLARE SUB DEMO2 ()
DECLARE SUB DEMO1 ()
DECLARE FUNCTION MOUSEINIT% ()
DECLARE SUB MOUSECALL ()
DECLARE SUB MOUSEGETPRESSINFO (LBTN%, RBTN%,
    MBTN%, COUNT%, HPOSN%, VPOSN%)
DECLARE SUB MOUSEGETRELEASEINFO (LBTN%, RBTN%,
    MBTN%, COUNT%, HPOSN%, VPOSN%)
DECLARE SUB MOUSEGETSTATUS (LBTN%, RBTN%, MBTN%,
    HPOSN%, VPOSN%)
DECLARE SUB MOUSEHIDE ()
DECLARE SUB MOUSEREADCOUNTERS (HCOUNT%, VCOUNT%)
DECLARE SUB MOUSESETHORIZRANGE (HMIN%, HMAX%)
DECLARE SUB MOUSESETPOSN (HPOSN%, VPOSN%)
DECLARE SUB MOUSESETUP ()
DECLARE SUB MOUSESETVERTRANGE (VMIN%, VMAX%)
DECLARE SUB MOUSESHOW ()

```

MOUSEINT:

' Machine-language routine 40 bytes long:

```

DATA 55      : 'PUSH BP
DATA 89, E5   : 'MOVE BP,SP
DATA 56      : 'PUSH SI
DATA 8B, 76, 06 : 'MOV SI,[BP+6]
DATA 8B, 04   : 'MOV AX,[SI]
DATA 8B, 5C, 02 : 'MOV BX,[SI+2]
DATA 8B, 4C, 04 : 'MOV CX,[SI+4]
DATA 8B, 54, 06 : 'MOV DX,[SI+6]
DATA 8E, 44, 08 : 'MOV ES,[SI+8]
DATA CD, 33   : 'INT 33h
DATA 8C, 44, 08 : 'MOV [SI+8],ES
DATA 89, 54, 06 : 'MOV [SI+6],DX
DATA 89, 4C, 04 : 'MOV [SI+4],CX
DATA 89, 5C, 02 : 'MOV [SI+2],BX
DATA 89, 04   : 'MOV [SI],AX
DATA 5E      : 'POP SI
DATA 5D      : 'POP BP
DATA CB      : 'RETF

```

TYPE MOUSEREGS

```

AX AS INTEGER
BX AS INTEGER
CX AS INTEGER
DX AS INTEGER
ES AS INTEGER

```

END TYPE

```

DIM SHARED MREG AS MOUSEREGS
REDIM SHARED MOUSEROUTINE%(0 TO 19)
DIM SHARED MOUSEREADY%
MOUSEREADY% = 0
MOUSESETUP
MOUSEREADY% = MOUSEINIT

```

DEFINT A-Z

CLS

TYPE TEXTMASK

```

BG AS INTEGER
FG AS INTEGER
CHAR AS INTEGER
MASK AS INTEGER

```

END TYPE

IF MOUSEREADY% THEN

```

    DEMO1
    DEMO2
    DEMO3

```

ELSE

CLS

PRINT "No mouse available for demonstration"

END IF

END

SUB DEMO1

'* Display the mouse

'* and its current status

CLS

PRINT , , "Press Esc to end"

PRINT "Mouse has"; MOUSEREADY%; "buttons";

MOUSESHOW

DO

CALL MOUSEGETSTATUS(L%, R%, M%, HORIZ%, VERT%)

LOCATE 3, 1

IF L% THEN PRINT "Left DN"; ELSE PRINT "Left UP";

IF MOUSEREADY > 2 THEN

IF M% THEN PRINT " -- Mid DN"; ELSE PRINT
" -- Mid UP";

END IF

IF R% THEN PRINT " -- Right DN"; ELSE PRINT
" -- Right UP";

LOCATE 4, 1

PRINT USING "Mouse at column ### and row ###";

HORIZ%; VERT%

ESC\$ = INKEY\$

LOOP UNTIL ESC\$ = CHR\$(27)

MOUSEHIDE

END SUB

SUB DEMO2

RANDOMIZE TIMER

MOUSESHOW

DO

CLS

PRINT "Click left button for new window;
right button to end. "

TOP = INT(RND * 15) + 2

VERT = INT(RND * (22 - TOP)) + 3

LEFT = INT(RND * 60) + 1

HORIZ = INT(RND * (77 - LEFT)) + 3

LOCATE TOP, LEFT

PRINT CHR\$(201); STRING\$(HORIZ, 205); CHR\$(187);

FOR I = 1 TO VERT

LOCATE TOP + I, LEFT

PRINT CHR\$(186); STRING\$(HORIZ, 32); CHR\$(186);

NEXT I

LOCATE TOP + VERT, LEFT

PRINT CHR\$(200); STRING\$(HORIZ, 205); CHR\$(188);

CALL MOUSESETHORIZRANGE(LEFT * 8, (LEFT + HORIZ
- 1) * 8)

CALL MOUSESETVERTRANGE(TOP * 8, (TOP + VERT - 2) * 8)

DEMO2LP:

L = 0: R = 1: M = 0

CALL MOUSEGETPRESSINFO(L, R, M, CNT, H, V)

IF R THEN

```

MOUSEHIDE
EXIT SUB
END IF
L = 1: R = 0: M = 0
CALL MOUSEGETPRESSINFO(L, R, M, CNT, H, V)
IF L = 0 THEN GOTO DEMO2LP
DO
    CALL MOUSEGETSTATUS(L, R, M, H, V)
    LOOP UNTIL (L OR R OR M) = 0
LOOP
END SUB

SUB DEMO3
CLS
PRINT "Press Esc to end"
PRINT "Use mouse and left button or arrow keys and
    Enter to select"
DIM CH$(1 TO 4)
FOR I = 1 TO 4
    CH$(I) = CHR$(64 + I)
    LOCATE 10 + I, 35
    PRINT "Select "; CH$(I);
NEXT I
COLOR 0, 7
LOCATE 11, 35
PRINT "Select "; CH$(1);
OLDSEL = 1
HIT = 0
CALL MOUSESETHORIZRANGE(34 * 8, 34 * 8)
CALL MOUSESETVERTRANGE(10 * 8, 13 * 8)
CALL MOUSESETPOSN(34 * 8, 10 * 8)
DO
    CALL MOUSEGETSTATUS(L, R, M, H, V)
    SEL = V \ 8 - 9
    HIT = L OR R OR M
    K$ = INKEY$
    IF LEN(K$) THEN
        SELECT CASE K$
            CASE CHR$(27) ' Esc
                EXIT SUB
            CASE CHR$(0) + CHR$(72) ' Up arrow
                IF SEL > 1 THEN SEL = SEL - 1
            CASE CHR$(0) + CHR$(80) ' Dn Arrow
                IF SEL < 4 THEN SEL = SEL + 1
            CASE CHR$(13)
                HIT = -1
        END SELECT
    END IF
    IF SEL <> OLDSSEL THEN
        COLOR 7, 0
        LOCATE 10 + OLDSSEL, 35
        PRINT "Select "; CH$(OLDSSEL);
        COLOR 0, 7
        LOCATE 10 + SEL, 35
        PRINT "Select "; CH$(SEL);
        OLDSSEL = SEL
        IF SEL <> V \ 8 - 9 THEN
            CALL MOUSESETPOSN(34 * 8, (SEL + 9) * 8)
        END IF
    END IF
    IF HIT THEN
        COLOR 7, 0
        LOCATE 25, 1
        PRINT USING "Selected &"; CH$(SEL);
    
```

```

        HIT = 0
    END IF
LOOP
END SUB

DEFSNG A-Z
SUB MOUSECALL
'*
'* Call mouse using current values
'* in MREG registers
'*
    DEF SEG = VARSEG(MOUSEROUTINE%(0))
    ADDR% = VARPTR(MOUSEROUTINE%(0))
    CALL ABSOLUTE(MREG, ADDR%)
    DEF SEG
END SUB

SUB MOUSEGETPRESSINFO (LBTN%, RBTN%, MBTN%,
    COUNT%, HPOSN%, VPOSN%)
'*
'* Gets information about last mouse click
'* Set LBTN%, RBTN%, or MBTN% <> zero for button
    to query
'* LBTN%, RBTN%, or MBTN% return 1 to show which
'* button is currently down or zero to show
    currently up
'* COUNT% has count of clicks since last call
'* HPOSN% and VPOSN% are horizontal and vertical
    position
'* of cursor at last click
'*
    IF MOUSEREADY% THEN
        IF (LBTN% OR RBTN% OR MBTN%) <> 0 THEN
            MREG.AX = 5
            IF LBTN% THEN MREG.BX = 0
            IF RBTN% THEN MREG.BX = 1
            IF MBTN% THEN MREG.BX = 2
            MOUSECALL
            LBTN% = MREG.AX AND 1
            RBTN% = (MREG.AX AND 2) \ 2
            MBTN% = (MREG.AX AND 4) \ 4
            COUNT% = MREG.BX
            HPOSN% = MREG.CX
            VPOSN% = MREG.DX
        ELSE
            CALL MOUSEGETSTATUS(LBTN%, RBTN%, MBTN%,
                HPOSN%, VPOSN%)
            COUNT% = 0
        END IF
    ELSE
        LBTN% = 0: RBTN% = 0: MBTN% = 0
        COUNT% = 0
        HPOSN% = -1: VPOSN% = -1
    END IF
END SUB

SUB MOUSEGETRELEASEINFO (LBTN%, RBTN%, MBTN%,
    COUNT%, HPOSN%, VPOSN%)
'*
'* Gets information about last mouse release
'* Set LBTN%, RBTN%, or MBTN% <> zero for button to query
'* LBTN%, RBTN%, or MBTN% return 1 to show which
'* button is currently down or zero to show
    currently up

```

Listing continued on page 54

Type the second section, the mouse initialization module, carefully; it houses the DATA statements composing the machine-language routine, MOUSEINT, which tells the mouse driver what to do. The first several DATA statements load your data into the CPU's special memory locations, or *registers*. These data values are the commands and requests your program sends to the mouse driver. The line DATA CD, 33 sends requests to the mouse driver by calling Interrupt 33 hex. Sub-

sequent DATA statements read the registers, because the interrupt sends back information the program needs.

The comments in each DATA line provide the assembly-language equivalent for that line. When you're typing the program, you may delete these comments and the colon preceding each of them, but be sure not to add an extra comma at the end of any DATA line. If you do, the program will probably lock up your computer. (Take it

from me; this is the voice of experience talking.)

The definition TYPE MOUSEREGS, immediately following the DATA statements, is crucial. If you alter MOUSEREGS, you must change the machine-language routine, and vice versa. The two are interdependent. The two DIM statements are also important. The first creates a block of data called MREG of type MOUSEREGS. MOUSEREGS is a definition; MREG is the name of the data area in memory. (If the distinction

Continued from page 53

```

'* COUNT% has count of releases since last call
'* HPOSN% and VPOSN% are horizontal and vertical
  position
'* of cursor at last release
'*
IF MOUSEREADY% THEN
  IF (LBTN% OR RBTN% OR MBTN%) <> 0 THEN
    MREG.AX = 6
    IF LBTN% THEN MREG.BX = 0
    IF RBTN% THEN MREG.BX = 1
    IF MBTN% THEN MREG.BX = 2
    MOUSECALL
    LBTN% = MREG.AX AND 1
    RBTN% = (MREG.AX AND 2) \ 2
    MBTN% = (MREG.AX AND 4) \ 4
    COUNT% = MREG.BX
    HPOSN% = MREG.CX
    VPOSN% = MREG.DX
  ELSE
    CALL MOUSEGETSTATUS(LBTN%, RBTN%, MBTN%,
      HPOSN%, VPOSN%)
    COUNT% = 0
  END IF
ELSE
  LBTN% = 0: RBTN% = 0: MBTN% = 0
  COUNT% = 0
  HPOSN% = -1: VPOSN% = -1
END IF
END SUB

SUB MOUSEGETSTATUS (LBTN%, RBTN%, MBTN%, HPOSN%,
  VPOSN%)
'*
'* Gets current mouse status
'* LBTN%, RBTN%, and MBTN% return
'* 1 if button is down or zero if button is up
'* HPOSN% returns horizontal position
'* VPOSN% returns vertical position
'*
IF MOUSEREADY% THEN
  MREG.AX = 3
  MOUSECALL
  LBTN% = MREG.BX AND 1
  RBTN% = (MREG.BX AND 2) \ 2
  MBTN% = (MREG.BX AND 4) \ 4

```

```

  HPOSN% = MREG.CX
  VPOSN% = MREG.DX
ELSE
  LBTN% = 0: RBTN% = 0: MBTN% = 0
  HPOSN% = -1: VPOSN% = -1
END IF
END SUB

SUB MOUSEHIDE
'*
'* Hide the mouse cursor
'* Decrement the mouse cursor flag
'* Cursor hidden if flag <> zero
'* MOUSEINIT sets flag to -1
'*
IF MOUSEREADY% THEN
  MREG.AX = 2
  MOUSECALL
END IF
END SUB

FUNCTION MOUSEINIT%
'*
'* Initialize mouse and return
'* number of buttons
'* Return zero if mouse driver
'* unavailable or mouse not
'* present
'*
DEF SEG = 0
SUM% = 0
FOR I% = &H33 * 4 TO &H33 * 4 + 3
  SUM% = SUM% + PEEK(I%)
NEXT I%
IF SUM% = 0 THEN
  MOUSEINIT% = 0
  EXIT FUNCTION
END IF
MREG.AX = 0
MOUSECALL
IF MREG.AX = 0 THEN
  MOUSEINIT% = 0
ELSE
  MOUSEINIT% = MREG.BX
END IF
END FUNCTION

```

confuses you, think about how QBasic stores strings. The definition of *string* is included in QBasic itself. When you use a variable such as A\$, you're creating an instance of a string, just as MREG creates an instance of MOUSEREGS.) The last data definition, REDIM SHARED MOUSEROUTINE, defines a block of memory that will hold the machine-language routine.

The next four lines do some preliminary work. Executing the subprogram MOUSESETUP loads the

machine-language commands into the array MOUSEROUTINE. Equating MOUSEREADY% with MOUSEINIT, the function that initializes the mouse driver for use, stores the number of mouse buttons in the variable MOUSEREADY%. This gives every mouse subprogram and function a way to determine whether it's safe to call the mouse, because if the value of MOUSEREADY% is zero, a mouse isn't available.

The third section of MOUSEDemo.BAS, highlighted in white, contains

the three demonstration subprograms: DEMO1, DEMO2, and DEMO3. DEMO1 shows how to use MOUSESHOW to display the mouse cursor and MOUSEGETSTATUS to track the mouse's position around the screen. The mouse's position is stored in HORIZ and VERT. DEMO1 also shows one way to detect mouse clicks: by storing the mouse buttons' positions in variables (in L%, R%, and M%, in this case).

When you run the first demo, you'll notice that the values of the

```
SUB MOUSEREADCOUNTERS (HCOUNT%, VCOUNT%)
'*
'* Returns mouse movement relative to
'* the last time this function was called
'* Measurements are in "mickeys." By default,
'* 1 mickey = 1 pixel horizontally and
'* 2 mickeys = 1 pixel vertically
'*
    IF MOUSEREADY% THEN
        MREG.AX = 11
        MOUSECALL
        HCOUNT% = MREG.CX
        VCOUNT% = MREG.DX
    END IF
END SUB

SUB MOUSESETHORIZRANGE (HMIN%, HMAX%)
'*
'* Sets the minimum and maximum horizontal
'* range of the mouse cursor.
'* Moves the cursor inside the range if it's
'* outside.
'*
    IF MOUSEREADY% THEN
        MREG.AX = 7
        MREG.CX = HMIN%
        MREG.DX = HMAX%
        MOUSECALL
    END IF
END SUB

SUB MOUSESETPOSN (HPOSN%, VPOSN%)
'*
'* Sets mouse cursor to HPOSN% and VPOSN%
'*
    IF MOUSEREADY% THEN
        MREG.AX = 4
        MREG.CX = HPOSN%
        MREG.DX = VPOSN%
        MOUSECALL
    END IF
END SUB

SUB MOUSESETUP
'*
```

```
'* Setup to use mouse
'* MUST be called before
'* MOUSEINIT or any other
'* mouse calls
'*
    RESTORE MOUSEINT
    DEF SEG = VARSEG(MOUSEROUTINE%(0))
    ADDR% = VARPTR(MOUSEROUTINE%(0))
    FOR I = 0 TO 39
        READ A$
        POKE ADDR% + I, VAL("&H" + A$)
    NEXT I
    IF A$ <> "CB" THEN ERROR 255
    DEF SEG
END SUB

SUB MOUSESETVERTRANGE (VMIN%, VMAX%)
'*
'* Sets the minimum and maximum vertical
'* range of the mouse cursor
'* Moves the cursor inside the range if it's
'* outside
    IF MOUSEREADY% THEN
        MREG.AX = 8
        MREG.CX = VMIN%
        MREG.DX = VMAX%
        MOUSECALL
    END IF
END SUB

SUB MOUSESHOW
'*
'* Display the mouse cursor
'* Increments mouse cursor flag
'* Cursor is displayed if flag is 0
'* MOUSEINIT sets flag to -1)
'*
    IF MOUSEREADY% THEN
        MREG.AX = 1
        MOUSECALL
    END IF
END SUB
```

End

mouse's position are always multiples of eight. The mouse driver is reporting the mouse position in pixel values; on a text screen—at least on the original CGA screen—characters are eight pixels wide by eight pixels high. Luckily, the

mouse doesn't force you to figure out the number of pixels per character on an EGA, VGA, or SVGA screen (luckily, because the number of pixels changes according to the number of rows on screen). Instead, the mouse driver lets you

assume that every character position is eight pixels wide and eight pixels high. Notice, however, that the top-left corner of the screen is position 0,0 according to the mouse, while QBasic insists that it is position 1,1. It takes only a little bit of math to convert from mouse coordinates to row and column coordinates on a text screen. (In DEMO3, the line `SEL = V \ 8 - 9` handles this translation task.)

DEMO2 shows how to use the subprograms `MOUSESETVERTRANGE` and `MOUSESETHORIZRANGE` to restrict the cursor to a specific portion of the screen; it also shows how to record both left and right mouse-button clicks. When the demo is running, a new box appears on the screen each time you click the left mouse button. The mouse cursor is trapped inside the box; try as you may, you can't move the cursor outside the box. If you press the right mouse button, the third demonstration ends.

The final demonstration, DEMO3, shows how to use the mouse and keyboard to set up a menu. You can move the cursor bar up and down with a mouse (or the arrow keys), then select an item by clicking the left mouse button or pressing Enter.

After displaying the demonstration menu and restricting the mouse to a small portion of the screen, DEMO3 enters a loop. Each time through the loop, it checks whether the mouse has moved and whether the user has pressed an arrow key. If the user presses a mouse button or the Enter key, the program processes a new menu selection and shows the user's choice near the bottom of the screen.

The fourth, and final, section of `MOUSEDemo.BAS` comprises the program's mouse services, the 11 subroutines and one function that help you keep track of mouse movements. Every new version of Microsoft's mouse driver (as well as the drivers for competing mice) adds new services. Early mouse

DOS Tip

A DOSKEY Protection System

It's nearly impossible to prevent outright sabotage to your computer or the files and information on it if others have access to your machine. But you can reduce the likelihood that accidental damage will occur. By creating two small batch files, one of which runs automatically during start-up, you can redefine certain DOS commands and thus disable them. First, create the following batch file and name it `OOPS.BAT`:

```
@ECHO OFF
CLS
ECHO.
ECHO Access denied.
ECHO.
```

This file clears the screen and displays the message "Access denied." I chose this message because it's one that DOS uses and it has the ring of authority. If you like, substitute a more informative message, such as this one:

```
ECHO The command you chose is dangerous and has been disabled.
```

Next, create `DOSKEYS.BAT`, a batch file containing `DOSKEY` macros that assign `OOPS.BAT` to run whenever someone tries to execute a command you feel is dangerous:

```
@ECHO OFF
CLS
DOSKEY ASSIGN=C:\OOPS
DOSKEY FDISK=C:\OOPS
DOSKEY DELOLDOS=C:\OOPS
DOSKEY MEMMAKER=C:\OOPS
```

To protect your information on an ongoing basis, add the command `CALL DOSKEYS` to your `AUTOEXEC.BAT` so that `DOSKEYS.BAT` executes at startup.

The four commands redefined above are ones you'd most likely need only occasionally and that you wouldn't want someone inexperienced to use. For instance, inappropriate use of `FDISK` will destroy the files it contains. You may add other dangerous commands, as well.

To "reactivate" a disabled command, simply type:

```
DOSKEY command=
```

where *command* is the name of the command you're reactivating. Or create yet another small batch file, `REDEFINE.BAT`, to cancel all `DOSKEY` assignments:

```
@ECHO OFF
CLS
DOSKEY ASSIGN=
DOSKEY FDISK=
DOSKEY DELOLDOS=
DOSKEY MEMMAKER=
```

—Lane Olinghouse

drivers offered only a dozen or so services; current ones offer more than 50. Luckily, many of these services are useful only to operating systems and complex object-oriented or multitasking programs. You can write sophisticated programs without worrying about most mouse-driver services.

The 12 services included in MOUS-DEMO.BAS represent the ones you're most likely to need when creating mouse-compatible QBasic programs. When you understand how these services work, you can create your own routines as you need them, but QBasic programs rarely need advanced mouse services.

On the other hand, you may find that you need only two or three of the services in MOUSDEMO.BAS. You may delete any of the functions and subprograms except for MOUSESETUP, MOUSEINIT, and MOUSECALL. At minimum, you'll probably also want to use MOUSESHOW and MOUSEGETPRESSINFO.

The accompanying table, "At Your Service" (right), provides brief summaries of the entire complement of services. For a more complete description, read the comments at the beginning of each mouse routine; they explain how that routine works, the data it expects, and the information it returns.

Home Alone

The best way to understand how the services in MOUSDEMO.BAS work is to experiment. To get acquainted with them, try adding your own demonstration to the listing, or modify one of the demos. For starters, consider adding a couple of options to DEMO3's menu; then try writing a test program whose only function is offering choices and interpreting the user's response.

The next step is adding mouse capabilities to your existing QBasic programs. As you begin, remember that each program must start with mouse definitions and then call MOUSESETUP and MOUSEINIT before it starts manipulating the mouse.

AT YOUR SERVICE

ESSENTIAL MOUSE SERVICES

Subprogram/Function	Purpose
MOUSECALL	Calls mouse and passes it a command via CPU registers.
MOUSEINIT	Initializes mouse and reports number of buttons. Returns zero if mouse driver unavailable or mouse not present.
MOUSESETUP	Sets up mouse machine-language routine. You must call this subprogram before calling any other service.

OPTIONAL MOUSE SERVICES

Subprogram/Function	Purpose
MOUSESHOW	Displays mouse cursor.
MOUSEHIDE	Hides mouse cursor. To avoid appearance of "ghost" cursors, use this service before printing or updating screen.
MOUSEGETPRESSINFO	Gets information about last mouse click. Shows which button is down, number of clicks since last call, vertical and horizontal position of cursor at last mouse click.
MOUSEGETRELEASEINFO	Gets information about last release of mouse buttons. Use MOUSEGETPRESSINFO and MOUSEGETRELEASEINFO together to let user drag objects around screen.
MOUSEGETSTATUS	Gets information on current status of mouse.
MOUSEREADCOUNTERS	Returns horizontal and vertical position of mouse cursor, relative to its location last time function called.
MOUSESETHORIZRANGE	Restricts mouse movement by setting minimum and maximum horizontal range of mouse cursor.
MOUSESETVERTRANGE	Restricts mouse movement by setting minimum and maximum vertical range of mouse cursor.
MOUSESETPOSN	Sets mouse cursor to correspond to values of HPOSN% and VPOSN%.

Also, keep in mind that in most cases it's best to use MOUSEHIDE to turn off the mouse before printing or updating the screen. Afterward, use MOUSESHOW to turn the mouse back on. If you don't, you may leave "ghost" cursors on the screen.

If you need additional background before setting out on your own, I recommend investing in a programming book, such as *Micro-*

soft Mouse Programmer's Reference (Microsoft Books). Books of this type will also help you understand how to add your own mouse services to QBasic.

With a bit of practice, I'm confident that you'll soon find it's as easy to turn on the mouse cursor as it is to print text on the screen. And your QBasic programs will look much more professional. ■

START-UP CLINIC

Starting Out And Starting Over

by Jack Nimersheim

Every month, *DOS World* receives a dozen or more letters for this column; space considerations limit me to answering only three or four questions per issue. Also, because of publishing schedules, several months will pass between the time you write a letter and when it sees print, if it's chosen. So don't get discouraged; that question you submitted a while back may still be answered in some future issue.

Straight to the System Prompt

When I'm programming in QBasic, one of my computers returns an "illegal function call" error message whenever I try to activate display mode 9. Why? Also, when I turn on my other computer, it asks me to enter the date and time before displaying the system prompt. Again, why, and is there any way to prevent this from happening?

W. Noah Kruswicki
DOS World reader

Display mode 9 is a high-resolution display (1024 by 768 pixels) that also requires a video card supporting a high horizontal scan rate: more than 55kHz. Not all video cards match these specifications. My guess is that your computer's doesn't. If you want the higher resolution, try specifying display mode 5 or 7 within your programs. Either of these modes provides a 1024-by-768 display, but does so using a lower horizontal scan rate that your video card may support.

Regarding your date/time start-up problem, either your second computer doesn't use an AUTOEXEC.BAT file or, if it does, that file contains DATE and TIME statements. Each time you turn on your system, it looks

for a file called AUTOEXEC.BAT, which is stored in your hard disk's root directory. If this file doesn't exist, many computers automatically ask you to verify the date and time stored in their CMOS settings before displaying the system prompt. By creating a blank AUTOEXEC.BAT file—an empty file named AUTOEXEC.BAT in the root directory of your hard disk—you can bypass these prompts.

If your PC system already has an AUTOEXEC.BAT file, make the root directory the active directory, and use the following command to view its contents:

TYPE AUTOEXEC.BAT

If you see the DATE and TIME commands anywhere in this file, use a text editor to add REM and a space to the beginning of both lines containing these commands. The next time you start your computer you'll advance directly to the system prompt.

Smarter SmartDrive

I was surprised to discover that my Pentium doesn't include disk caching in its start-up routine. I understand that Pentiums have an on-board data cache, but is it big enough that I don't need a virtual cache such as SmartDrive? If I do use SmartDrive, what commands should I add to my start-up files?

Fletcher Hanks
New York, New York

SmartDrive can improve the performance of any system, including a Pentium-based PC. It does so by creating a *disk cache*: a block of memory where DOS can temporarily store data it's transferring from disk

*Whether you're mastering
fundamental computing skills
or learning to program
a Pentium, here are some basic
pointers to help you on your way.*

to RAM or vice versa. When disk caching is in effect, DOS performs the actual data transfer during "idle times": when it's least likely to interrupt other activities. Combined with the fact that RAM access is faster than disk access, that means caching can speed up many disk-related activities.

There are two types of disk-cache operations: read caching and write caching. Read caching stores in memory data your system reads from disk; write caching stores in memory data coming from RAM before transferring it to disk.

Many "experts," myself included, recommend that you use only read caching. Why? Because files may become corrupted if you turn off your PC or your system crashes before it can write to disk any data stored in memory.

To install read caching for your drives during system start-up, add this command to your AUTOEXEC.BAT file:

```
C:\DOS\SMARTDRV.EXE x x x
```

The *x*s represent the drives to which you want to apply disk caching, so substitute the appropriate drive letters for your system. (Include your CD-ROM drive.) The command as I've written it here assumes that the SMARTDRV.EXE file is stored in the \DOS directory of drive C. If that's not the case on your system, substitute the appropriate location.

Certain hard-disk controllers require that you use *double buffering*—a process that involves including the SMARTDRV command in both your CONFIG.SYS and AUTOEXEC.BAT files. If your disk controller requires double buffering, you'll need to add the following statement to your CONFIG.SYS file:

```
DEVICE=C:\DOS\SMARTDRV.EXE /DOUBLE_BUFFER
```

How do you know whether your disk controller requires double buffering? There's no easy answer, but here's one (admittedly convoluted) way to find out:

1. Add the two commands listed above to your AUTOEXEC.BAT and CONFIG.SYS files.
2. Run DOS's MEMMAKER utility to optimize the way your computer uses memory.
3. Type MEM /C /P and press Enter to verify that your system is using upper memory.
4. Type SMARTDRV and press Enter to display information about how your system's disk cache is set up.
5. If you see the word *yes* anywhere in the *Buffering* column, your hard-disk controller requires double

buffering; you'll have to leave the SMARTDRV command in your CONFIG.SYS file. If you see *no* in every line under *Buffering*, you can remove the SMARTDRV command from CONFIG.SYS.

Codes and Clues

I found your explanation of CMOS settings ("Under the Hood," DOS World #21, May 1995, page 63) quite informative. But what about difficulties that surface before your system begins checking CMOS? Depending on the problem, you'll either hear a series of beeps or see a cryptic error code. Is this standard?

Robert J. Bonk
Van Nuys, California

When you first turn on your system (cold boot), the POST (Power-On Self-Test) tests everything: microprocessor, internal boards, monitor and video hardware, memory, keyboard, disk drives. Following a warm boot (Ctrl+Alt+Del), the POST tests only keyboard and disk drives. If the POST discovers a problem before testing your video hardware, it responds with audio signals—beeps. If your video hardware passes muster, the POST can display an error code on screen to identify the malfunctioning component.

Beeps and codes are standard across most systems. A continuous beeping at start-up indicates a power-supply failure. A long beep followed by a short beep means a problem in one of the system boards. A long beep followed by two short beeps denotes a video-hardware malfunction.

There are hundreds of error codes, so we'll list just the major categories here, with corresponding suspected problem areas:

Code	Problem Source	Code	Problem Source
100-199	system board	1700-1799	hard drive and/or adapter
200-299	memory	1800-1899	expansion unit (XT)
300-399	keyboard	2000-2199	bisynchronous comm adapter
400-499	monochrome display	2400-2599	EGA system-board video (MCA)
500-599	color/graphics display	3000-3199	LAN adapter
600-699	floppy-disk drives and/or adapter	4800-4999	internal modem
700-799	math coprocessor	7000-7099	Phoenix BIOS chips
900-999	parallel-printer adapter	7300-7399	3.5-inch disk drive
1000-1099	alternate printer adapter	8900-8999	MIDI adapter
1100-1299	asynchronous communications device, adapter, or port	11200-11299	SCSI adapter
1300-1399	game port	21000-21099	SCSI fixed disk and controller
1400-1499	color/graphics printer	21500-21599	SCSI CD-ROM system
1500-1599	synchronous communications device, adapter, or port		

Q&A

Edited by Doug Lowe

WINDOWS

Q I'm wondering whether Microsoft will detach DOS from Win95 and sell it separately as DOS 7. My notebook computer doesn't meet Win95's system requirements, and I'd like to use more than eight filename characters.

A I think you're out of luck on this one. There's a great deal of speculation now on whether Microsoft Corporation will release another version of MS-DOS incorporating some of the features of Win95 (without the graphical user interface). This future DOS 7 might support long filenames, multitasking, and perhaps a few of the other less glamorous capabilities of Win95. Whether or not Microsoft actually will release such an operating system is anybody's guess.

Unfortunately, however, your current versions of DOS-based software can't recognize long filenames. So, even if you upgrade to this hypothetical new DOS version, you still won't be able to use long filenames, unless you also upgrade your applications. And there's the rub: When was the last time you saw a major new version of WordPerfect or Lotus 1-2-3 for DOS?

Vendors seem to be too busy creating new versions of their software for the more lucrative Win95 environment to invest any effort in the DOS versions of their programs.

Q I've heard that Windows 95 doesn't include QBasic. But can I still run existing QBasic programs under Win95?

A Yes, QBasic is alive and well, sort of. The good news is that although Win95 doesn't come with QBasic, it doesn't remove QBasic from your hard drive when you update an older MS-DOS version to Win95.

As a result, you'll still find QBASIC.EXE in your \DOS directory, and you can still run your existing QBasic programs.

On the other hand, Microsoft has left QBasic out of the Win95 loop. That means you can't access any of Win95's new features, such as long filenames or Registry (a database of information about the hardware and software installed on your system), from QBasic programs.

Q I'm running Win95. When I boot my computer and want to go straight to MS-DOS mode, I press F4 when I see the "Starting Windows 95" message. But when I do that, my long filenames are nowhere in sight. How can I use long filenames in Win95's MS-DOS mode?

A Win95 offers two distinct flavors of MS-DOS. When you boot into DOS or click on the Start button, choose the Shut Down option, and select Restart the Computer in MS-DOS Mode, you're starting your computer in a special MS-DOS mode that doesn't load or activate Win95.

Consequently, you can't use any of Win95's new features while in this mode, including multitasking or long filenames. In effect, starting your computer in MS-DOS mode is equivalent to booting your computer into MS-DOS 7.

If, by contrast, you boot into Win95, then choose Start/Programs and select the MS-DOS Prompt option, your MS-DOS prompt is displayed in a window. This MS-DOS prompt is the new DOS 7; it lets you use long filenames, copy and paste information to the Clipboard, and run two or more DOS programs simultaneously in separate windows.

The solution to your problem is to avoid MS-DOS mode. Most DOS programs should run just fine from an MS-DOS window; restarting your computer in MS-DOS mode is necessary only for those rare programs that lock up when run in an MS-DOS window.

TROUBLESHOOTING

Q I use Word for Windows and the other day discovered that I can't attach a different template to my documents. When I call up the File/Templates command, the Attach Template field is grayed out. What gives?

A Your computer has contracted the newest form of computer virus, known as Winword.Concept. Unlike past viruses, Winword.Concept doesn't infect executable program files, such as those with EXE or COM extensions. Instead, Winword.Concept is a macro that attaches itself to Word's document files.

When you open an infected document, the virus copies itself into your NORMAL.DOT template, the one that governs most of Word's default settings. After working its way into your NORMAL.DOT template, Win-

word. Concept infects every document you save. Be aware that if you give an infected document to another user and he or she opens the document in Word, the virus will infect that system.

Fortunately, this virus isn't lethal. It doesn't erase files or reformat your hard disk; it just displays a message box showing the numeral 1. It was apparently written simply to prove that viruses of this sort could be created.

But Winword.Concept is annoying and has become widespread. My system caught it in mid-August, and I passed the infection on to several other people before I realized what had happened.

You can easily find out whether you have the virus by choosing Tools/Macros. From the dialog box, select NORMAL.DOT (Global Template) for the Macros Available In field; then look at the list to see whether you have macros with the following names:

```
AAAZAO
AAAZFS
AutoOpen
FileSaveAs
Payload
```

If you find these entries, the best way to remove the infection is to obtain a special file named SCAN.DOC. This software tool, developed by Microsoft Corporation, contains macros that scan your hard disk for infected documents; it deletes the bug and installs a macro in your NORMAL.DOT template to prevent future infestations by the Word.Concept virus.

You can obtain SCAN.DOC from a variety of sources, including the Microsoft Word forums on CompuServe, America Online, and Microsoft Network, as well as Microsoft's World Wide Web home page (<http://www.microsoft.com/msoffice>). Also see the related story, "Number One Virus on the Loose," in this issue's "DOS Watch," page 80.

HARDWARE

Q I spent \$200 on a 28.8kbps modem, but Internet access isn't any faster. Why not?

A The problem is simple: With modems, it takes two to tango. Although you now have a 28.8kbps modem, the modem you're dialing into is probably a slower 14.4kbps model. When that happens, your 28.8 modem must switch gears to operate at the speed of the slower modem.

The moral of the story is that simply upgrading your modem won't necessarily speed up your network access. Before you invest in a 28.8kbps modem, make sure the modem you're dialing can support the higher speed.

Q How many IDE controllers will work in one computer? I have several smaller disk drives I could piece together rather than spend money on a larger hard drive, if I could get two or three controllers to work together.

A The most you can manage is two IDE controller cards, each supporting two drives, for a total of four drives.

The first controller card is called the *primary* controller; the other card is the *secondary* controller. You must set up the secondary controller card to operate at I/O address 170 and IRQ 15. Not all IDE controllers can be set up this way, so you'll have to check your cards' documentation to see whether you can designate one of them as a secondary controller.

If the date of your computer's BIOS is 7/94 or later, you should be able to configure all four drives from the computer's BIOS setup routine. If you have an earlier BIOS, you must use a software driver to enable support for the secondary controller. **3DRVS2.ZIP**, a shareware program that provides such support, is available from the *DOS World BBS*. (See page 64 for details.) This file also contains additional information on installing the second controller.

Another option is to purchase one of the new Extended IDE (EIDE) controller cards. Because these cards contain both a primary and a secondary controller, they let you attach as many as four drives. Either way, the limit of four IDE drives still applies. ■

Contributing Editor Doug Lowe is the author of more than 20 computer books and also serves as a feature writer for Maximize magazine.

DOS Tip

The Hidden Power of DELTREE

If you want to delete a hidden, system, or read-only file, you don't have to apply the ATTRIB command to remove the file's attributes before using DEL or ERASE. Just use the DELTREE command to delete the file; DELTREE ignores file attributes. The syntax for the command is as follows:

`DELTREE filename`

DELTREE prompts you to confirm the deletion. To eliminate the confirmation step, add the /Y switch:

`DELTREE /Y filename`

Be careful, though: The powerful DELTREE command can delete an entire branch of your directory tree.

—Ken Johnson

How to Use

REPLACEABLE TEXT

Articles in *DOS World* will often give you a command that includes text you must replace with your own information. This replaceable text is in *italics*. For example, in the following command, you'd replace *filename* with the name of your own file:

```
COPY A:filename B:filename
```

THE CONFIG.SYS FILE

In your root directory is a file called CONFIG.SYS. Like AUTOEXEC.BAT, this file is in ASCII, and you can view your CONFIG.SYS file with the TYPE command. A typical CONFIG.SYS might look like this:

```
DEVICE=C:\DOS\HIMEM.SYS
DEVICE=C:\DOS\EMM386.EXE NOEMS
DOS=HIGH,UMB
FILES=50
BUFFERS=10
SHELL=C:\DOS\COMMAND.COM
C:\DOS\ /E:1024 /P
DEVICE=C:\DOS\ANSI.SYS
DEVICE=C:\DOS\SETVER.EXE
```

The rules for handling CONFIG.SYS are the same as they are for AUTOEXEC.BAT: Always back up the original file before you modify it and always have an emergency boot disk available. As with AUTOEXEC.BAT, changes you make to CONFIG.SYS won't take effect until you restart your computer.

ANSI.SYS AND THE ESCAPE CHARACTER

When an article says you must have ANSI.SYS installed, it means that the MS-DOS file ANSI.SYS should be in your \DOS directory, and the following line should be in your CONFIG.SYS file:

```
DEVICE=C:\DOS\ANSI.SYS
```

Some articles that discuss ANSI.SYS will also ask you to create a batch file that uses the escape character. Unfortunately, there's no uniform method of doing so. If you use EDIT, the text editor that comes with MS-DOS, you can make an escape character by pressing Ctrl+P and then the Esc key. The escape character appears on screen as a small left-pointing arrow. If you're using another text editor or word processor, check its instructions for information on how to enter the escape character.

THE AUTOEXEC. BAT FILE

Most people have a batch file called AUTOEXEC.BAT on their hard disks. If you want to look at it, first go to your root directory by typing CD\. Type DIR to make sure AUTOEXEC.BAT is there. Then type the following command:

```
TYPE AUTOEXEC.BAT | MORE
```

A simple AUTOEXEC.BAT file might look like this:

```
@ECHO OFF
PROMPT $P$G
PATH=C:\DOS;C:\WINDOWS;C:\WP51;C:\BAT
C:\DOS\SMARTDRV.EXE
C:\MOUSE\MOUSE.COM
C:\DOS\DOSKEY.COM
SET TEMP=C:\TEMP
```

When a *DOS World* article instructs you to modify your AUTOEXEC.BAT file, always make a backup copy of the original AUTOEXEC.BAT first. The most common names for your backup copy are AUTOEXEC.BAK or AUTOEXEC.BK. The latter lets you save different versions of your backups—for example, AUTOEXEC.BK1 and AUTOEXEC.BK2. You create a backup copy with the following command:

```
COPY AUTOEXEC.BAT AUTOEXEC.BAK
```

Also, you should have an emergency boot disk available whenever you modify AUTOEXEC.BAT. (See the accompanying section on the facing page, top.) It will let you access your hard drive in case you make an error that locks up your computer. Changes you make to AUTOEXEC.BAT won't take effect until you restart your computer.

BATCH FILES

A batch file is a text file that tells MS-DOS to do a series of tasks. The filename of a batch file always ends with the extension .BAT.

A batch file must be in plain-text format. For example, a batch file might consist of the following lines:

```
CD\
DIR /S /P
```

This batch file moves you to the root directory (CD\) and then gives you a list of all files in all directories (/S), pausing after each full screen (/P).

Every batch file needs a name. In such cases, you should pick your own name. Batch-file names carry the same limitations as any other DOS filename; you're limited to eight characters, plus a three-character extension. A batch-file name must always use the .BAT extension.

To avoid confusion and unexpected results, don't give any batch file the same name as another program or DOS command. For example, VCOPY.BAT is an acceptable name for a batch file, but not COPY.BAT or XCOPY.BAT, because COPY and

XCOPY are the names of DOS commands. To run or execute a batch file, type its name at the DOS prompt. For example, to run a batch file called VCOPY.BAT, type VCOPY at the DOS prompt.

Creating and Saving

Using EDIT. If you have DOS 5 or later, you can create a batch file using EDIT. EDIT usually resides in your DOS directory. Type EDIT and enter your batch file. When you're done, press Alt+F and choose the Save option. Type the name of your batch file (make sure you add the extension .BAT) and press the Enter key.

Using other word processors. Most word processors don't save files in plain text; they include other characters, such as control characters that handle such matters as page formatting and typefaces. Most word processors, however, do give you an option to save in plain text. The procedure varies from one word processor to the next. For example, when you save a file in Word-Perfect 5.1, you choose ASCII Text (DOS) as your Format option.

This Magazine



MAKING AN EMERGENCY BOOT DISK

Sometimes a DOS World article will suggest that you create a bootable floppy—a floppy disk that serves as an emergency system disk. That is, if your computer for some reason can't access your hard drive, you can start your computer from the emergency floppy. You should always have an emergency system disk available, but it's particularly important when you modify AUTOEXEC.BAT or CONFIG.SYS because you may change those files in such a way that your computer won't start from the hard drive. To create a system disk:

1. Insert a floppy disk in drive A.
2. At the command line, type **FORMAT A: /S** (all existing information on the floppy will be lost).

DOS first formats the floppy disk. Then it copies three DOS system files to the floppy disk: IO.SYS, MSDOS.SYS, and COMMAND.COM.

The first two are hidden files; you won't see them if you type DIR A:. If you have the disk-compression program DoubleSpace on your computer, the **FORMAT** command above will also copy **DBLSPACE.BIN**, a third hidden file, to the floppy disk.

After you've created your system disk, you should copy a few other basic files to your floppy. Go to your \DOS directory and copy the following files: **FORMAT.COM**, **EDIT.COM**, **EDIT.HLP**, **QBasic.EXE**, **UNDELETE.EXE**, **CHKDSK.EXE**, **FDISK.EXE**, and **SETUP.EXE**.

DEBUG SCRIPTS

A Debug script is a list of assembly-language instructions you convert to an executable program using the program **DEBUG.EXE** in your \DOS directory.

Creating the script. A Debug script must be in plain text. The procedure for creating the script is the same as for creating a batch file. You can use DOS's **EDIT** program, or you can use a different text editor or word processor and save the script in plain text format.

Creating an executable program. After creating and saving the script, type the following command at the DOS prompt:

```
DEBUG < filename
```

where *filename* is the name of the Debug

script you created. For example, if the name of your Debug script is **KEYPRESS.SCR**, you'd type this line:

```
DEBUG < KEYPRESS.SCR
```

at the DOS prompt. The executable program created by Debug will have the extension **.COM**. The name of the executable file is determined by the contents of the script. Our convention is to use the same name for the executable file as we do for the script. Thus, the executable file created by **KEYPRESS.SCR** will be named **KEYPRESS.COM**. Once you've created the executable file, you run it by typing its name at the DOS prompt. To run **KEYPRESS.COM**, type **KEYPRESS**.

PATHS AND THE PATH STATEMENT

DOS World articles often tell you to make sure that a particular file is in a directory included in your **PATH** statement. This lets you run a **.COM**, **.EXE**, or **.BAT** file from any directory on any drive.

For example, an author might tell you to create a batch file called **TEST.BAT**, put it into a subdirectory called **\BAT**, and put the subdirectory into your **PATH** statement. You can then execute **TEST.BAT** by typing **TEST** from anywhere on your drives, without having to change to the **\BAT** directory first.

The **PATH** statement is a line in your **AUTOEXEC.BAT** file. It gives DOS a list of directories to search for requested files. Here's an example:

```
PATH=C:\DOS;C:\WINDOWS;C:\BAT
```

When you type **TEST** at the DOS prompt, DOS looks for the program first in the current directory, then in the root directory, and then, in order, the **\DOS**, **\WINDOWS**, and **\BAT** directories. When it finds **TEST.BAT** in the **\BAT** directory, it executes the batch file.

Continued on page 64

BASIC DEFINITIONS

DOS prompt. Also known as the *command prompt*. By default, the DOS prompt looks like this: **C:\>**. This is where you type the instructions to run programs or DOS commands.

Boot, boot up, reboot. The process of starting or restarting your computer. Turning on your computer is *booting* or *booting up*. Pressing the key combination **Ctrl+Alt+Del** restarts, or *reboots* your computer. So does pressing the reset button, if your computer has one.

Extensions. When we refer to a program by its common name (for example, the DOS command **FORMAT**) without an extension, you can assume that the extension is **.COM** or **.EXE**. When we refer to a batch file, we always include the extension **.BAT**. QBasic program names must always include the **.BAS** extension.

ASCII. American Standard Code for Information Interchange. For our purposes, an ASCII file is a plain text file, one that consists entirely of

the characters you see on your keyboard.

Directories. Your hard drive has a main directory called the *root* or *home* directory. Directories created off the root directory are called *subdirectories*. When we provide the name of a subdirectory, it will look something like this: **\WORD\FILES**. Here, the root directory has a subdirectory called **WORD**, which in turn has a subdirectory called **FILES**.

File placement. We assume that the following files are in your root directory: **AUTO-**

EXEC.BAT, **CONFIG.SYS**, and **COMMAND.COM**. We also assume that your DOS files are in a DOS subdirectory, usually called **\DOS**.

Keystroke combinations. When you should hold down one key while pressing a second, we indicate it this way: **Alt+F4** (press the **Alt** key and hold it down while you press the **F4** key). When you should press one key, release it, and press another, we indicate it this way: **Alt, F4** (press the **Alt** key, release it, then press the **F4** key).

QBASIC PROGRAMS

QBasic is the programming language included in all versions of MS-DOS since version 5. The name of a QBasic program always ends with the extension .BAS.

Typing in the listing. Type QBASIC at the DOS prompt and press Enter to start. Now type in the listing as printed, pressing Enter at the end of each line. Note that when a line in the listing is indented two spaces from the line above and doesn't start with a command or keyword, it's a continuation of the previous line. Other indentations, or none at all, indicate a new line.

Subroutines and functions. QBasic listings often include subroutines and functions, and typing them is confusing at first. They begin with a line containing the keyword SUB or FUNCTION. Note that when you type a SUB or FUNCTION line and press Enter, all other lines you've typed will disappear from view. This can be disconcerting for beginning programmers. There's nothing to worry about—your listing is safe. To avoid screen clutter, QBasic simply hides other parts of your listing when you're typing in a subroutine or function. To see the other parts of your program, open the View menu at the top of the QBasic screen, then select SUBS. The SUBS dialog box will appear, letting you select the part of the program listing you want to view.

Saving a listing. Save your partially completed listing as you go along, rather than waiting until you've typed in the whole thing. To save, open the File menu, choose Save, and type in a filename when QBasic prompts you. We suggest using the filename specified in the magazine article. Subsequent saves of

your listing won't prompt you for a filename, but will instead use the filename indicated the last time you saved the listing.

Running a program. After you've typed in the entire listing and saved it a final time, you can run the program by selecting Start from the Run menu or pressing Shift+F5. If QBasic finds an error, it will stop the program and highlight that line. To run a QBasic program (a .BAS file) stored on your hard drive, start QBasic, then select Open from the File menu. Choose from among the .BAS files displayed in the open dialog box to load the program into QBasic, then select Start from the Run menu or press Shift+F5. To stop a QBasic program, press Ctrl+Break; select Exit from the File menu to return to DOS.

DOS World BBS. Typing and debugging a long listing is time-consuming. If you have a modem, our listings are always available on *DOS World's* bulletin-board system (BBS) at 603-924-3181. There are no connect-time charges; you pay only for the phone call. Set your communication program to 8 data bits, no parity, 1 stop bit (8, N, 1). Dial the number and wait for the "Connect" message. If you're a first-time user, the system will ask you to enter your name and choose a password. Then it will display a general information screen, followed by a questionnaire requesting your address, phone number, and so on, so that we may set up your account. From this point, on-screen prompts are the same for all users. A series of messages present the latest BBS news; press Enter after each message to go to the next screen. From the Bulletin Menu, Bulletin #1 offers information on navigating the Main and File Menus, with instructions for listing, marking, searching for, and downloading files. ■

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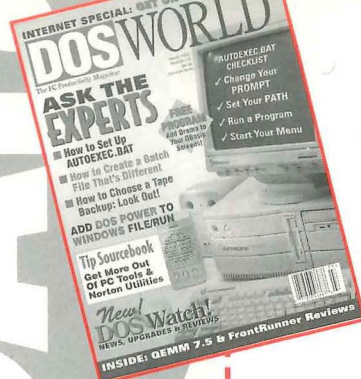
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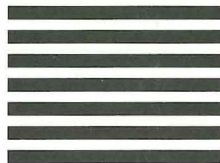
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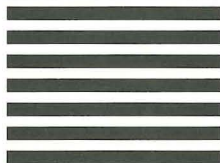
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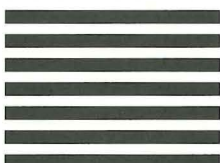
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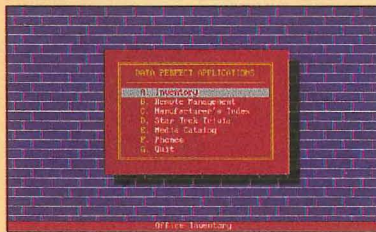
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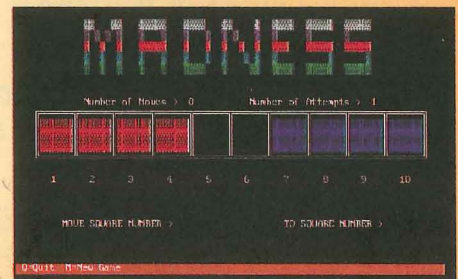
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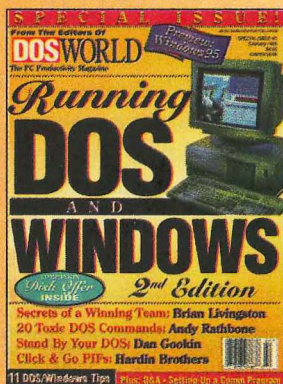
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UPGRADE UPDATE

■ Programmers migrating to **PowerBASIC** from C and Pascal often require pointers to translate their code, and so PowerBASIC Inc. has responded by incorporating pointers into version 3.2 of its language.

A *pointer* is a variable that holds a 32-bit address of data or code located elsewhere in memory. It "points" to that data or code, which in turn is referred to as the "target." The newest PowerBASIC now lets programmers quickly address target memory in any fashion desired, without using combinations of DEF SNG, PEEK, and POKE.

Suggested price is \$149, with upgrades beginning at \$19.95. C, Pascal, and QuickBasic users can upgrade to PowerBASIC for \$99. For more information, call 800-780-7707.

■ CyberMedia has introduced **First Aid '95**, featuring ten times as many software configuration fixes as the original First Aid for Windows Users.

This 16/32-bit utility automatically corrects nearly 10,000 Windows 95 and Windows 3.x problems: everything from GPF woes to sound-card and modem hang-ups. It even ferrets out misplaced files and DLLs, and includes a "molecular" uninstaller that lets you remove specific features of popular software programs.

Suggested price is \$49.95. Contact CyberMedia, 1800 Century Park East, Suite 1145, Century City, CA 90067; 310-789-4190.

Continued from page 80

corruption, but is an annoyance" nonetheless.

If you have Word 6.0 and run Windows 3.x, Windows 95, or Windows NT on a PC or even an Apple Macintosh, here's how you can recognize this bug. Select Macros from the Tools menu; if all of the following macros are present, your document is infected: AAAZFS, AAAZAO, AutoOpen, Payload, and File-SaveAs. When present, the virus will take control as an AutoOpen macro and infect the NORMAL.DOT template when you begin a new document. A message box will appear on your screen displaying the numeral 1, but then may disappear and may

not subsequently appear again. Nevertheless, every subsequent Word document saved under the File/Save As menu option will be infected with this "virus of one." Accordingly, the virus spreads rapidly as disks are shared in offices and corrupted data is sent via e-mail.

The good news is that Microsoft and antivirus manufacturers have been quick to help Word users get rid of the problem:

- Microsoft has developed a scanning tool, which you can download from the company's World Wide Web site at <http://www.microsoft.com/msoffice>, or from

Microsoft Network (MSN) by entering **go wordprankfix**. The tool is also available in Word forums on on-line services such as CompuServe and America Online.

- If you use Dr. Solomon's Anti-Virus Toolkit, you can download Word virus detection from S&S Software's BBS (617-229-8804), via e-mail (support@us.sands.com) or from CompuServe (**go Dr. Solomon**). For further information on Dr. Solomon, contact S&S Software International Inc., 17 New England Executive Park, Burlington, MA 01803; 617-273-7400.

If you're the type who likes to get under the hood of your PC and tinker with troublesome connectors, Micro 2000 (110 East Broadway, Suite 301, Glendale, CA 91205; 800-864-8008) has produced a videotape series that can help you make sure trouble doesn't turn into disaster.

The films cover everything from generalities such as diagnosing and repairing hard-drive problems to specifics such as tips on using Micro 2000's diagnostics programs more effectively.

HEY, Fix It Yourself

Reviving a Damaged Hard Disk, for example, is a step-by-step tutorial on recognizing hard-disk failure and recovering your drive and data. **Universal**

Diagnostics Toolkit is a specific hands-on guide for using Micro 2000's Micro-Scope. Each video runs approximately one hour. Suggested price is \$59 each.



THAT'S WHAT THEY SAID . . .

"As many as 85 percent of the people who use Intel PCs may still be using Windows 3.x or DOS or OS/2 in July 1996. But the Windows users who either buy PCs or write about them will be using Windows 95. And that means we will have completely forgotten about Windows 3.x and DOS."

—Stewart Alsop, *Infoworld*, July 17, 1995 ("Distributed Thinking")

"It's incredible. They just got Windows 95 out the door, and now we're testing Windows 96. I wonder what this will do to Windows 95 sales."

—Anonymous Windows 96 (code name Nashville) beta tester, *PC Week*, October 2, 1995 ("Microsoft Recruits Pool of Windows 96 Beta Testers")

"If your kids use on-line services and "chat" rooms, you must teach them to remember that the people in these rooms are strangers, and they shouldn't give out their real names or addresses. It's just like the real world."

—Michael J. Miller, *PC Magazine*, October 6, 1995 ("Cybersex Shock")

Your Write 2WORK

Change your spreadsheet information on the fly and e-mail your output instead of printing it on reams of paper with **2WORK 1.0**, from Young Computing (3 Skyview Lane, Woburn, MA 01801-5261; 617-935-5119).

This DOS utility lets number-crunchers create a custom WK1 worksheet in standard ASCII text. Write the information you want, follow the program's worksheet settings (cell formats, column widths, ranges, and so on), and 2WORK will convert the text to a standard WK1 file.

2WORK loads directly into Lotus 1-2-3, Microsoft Excel, Quattro Pro, and any other software that reads WK1 files. It also supports all Lotus 2.x @ functions and their equivalents in Excel. In addition, it can run within database programs such as dBASE, Paradox, and Microsoft Access.

This stand-alone utility requires less than 50K of disk space and runs under DOS or a Windows DOS session. Suggested retail price is \$249.

Get on the information highway fast and surf the Net even faster with 3Com Corp.'s **Impact ISDN** external digital modems (5400 Bayfront Plaza, P.O. Box 58145, Santa Clara, CA 95052-8145; 408-764-5000), billed as the speediest for network access and downloading. They're the first modems to support Multilink PPP: a new standard that fully exploits the high-speed capability of ISDN (Integrated Services Digital Network) communications.

ISDN technology uses digital switches on traditional phone systems to let users with dedicated equipment simultaneously

send and receive voice and data over a single phone line.

With a 3Com Impact ISDN modem, you can get to the Internet, on-line services, or even office networks at a whopping 128kbps—nearly four times faster than with most analog modems.

The 3Com Impact digital modem with Multilink PPP sells for \$649, while a model incorporating V.32bis sells for \$749. Current

3Com modem owners can upgrade to Multilink PPP for \$129 through December 1995. Both models feature backward compatibility with on-line services, BBSes, and colleagues not yet using ISDN.

Surfing at Lightning Speed

LABELS Both Fancy and Easy

Kroy Inc.'s **K225 On-Line Labeler** (P.O. Box C-12279, Scottsdale, AZ 85267-2279; 602-948-2222) lets you print high-quality, customized messages and addresses on 2.25-inch labels. You can even import graphics or scanned images, such as a company logo, for your labels. The printer's software also saves label formats and features an electronic address book that organizes and preserves your frequently used addresses.



its icon. A wide variety of fonts and type sizes, plus a starter roll of labels, are included. Suggested retail price is \$269.

In DOS, you can call up On-Line Labeler without interrupting your current application. Under Windows, you can quickly get to Labeler by clicking on

■ **BATmouse**, a program designed to let DOS users create batch files with the mouse (see "Shareware Exchange," September 1995, page 21), will soon be able to recognize keyboard input, too.

Developer Steve Batson says a new version with keyboard support will be available free of charge only to registered users of his other batch-file utilities. BATMouse 1.0 sells for \$10 plus \$3 shipping, available from Steve Batson, 4521 Fenwick Way, North Highlands, CA 95660.

■ **Make-It 486**, from Improve Technologies, is a processor upgrade for IBM-compatible 386 SX and DX computers. By making efficient use of an 8K internal cache and the Texas Instruments SXL2 50MHz processor, the Make-It 486 offers a speed increase of up to 300 percent with certain applications. Suggested price is \$99. Contact Improve Technologies, 345 East 800 South, Orem, UT 84058; 801-224-0088.

■ Recent issues of *DOS World* contained incorrect pricing information on two products. Motorola's **Life-style and Power Series V.34** fax/modem retails for \$375; the price for the Motorola V.3400 stand-alone and rack-mount model, for dial and leased line operation, is \$895. Also, Thompson Network Software's **The Doctor Anti-Virus System** retails for \$49; the price for Thompson's five-user Network Security Organizer is \$300.

EZ-MENU

Getting There The Easy Way

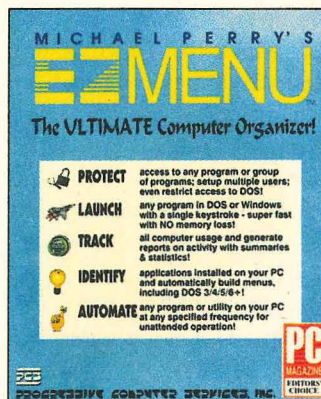
Now you don't have to worry about typing commands every time you want to run your favorite program. With EZ-Menu, just press a letter and you're there!

by Stanley J. Wszola

Your kids are working at the computer and they're constantly asking you for the commands to run their favorite games. Or your colleagues at work keep bugging you about how to run a particular program, or keep forgetting the command string for formatting a 360K floppy in a 1.2MB drive. One solution for "let's get going" computing problems like these is **EZ-Menu**, from Progressive Computer Services Inc.

With EZ-Menu, you can create a customized menu for listing, describing, and running all your favorite DOS and Windows applications. (See the first screen shot, bottom right.) Although EZ-Menu is a DOS-based program, you can run any application from a menu with just a simple one-letter keyboard entry or a click of your mouse.

Though its manufacturer describes EZ-Menu as an application organizer, it operates more like a super batch file. When you select any menu item, EZ-Menu issues either a DOS or a Windows command—which ever is appropriate to run



Customized program lists, automatic launching, and password security make EZ-Menu a winner.

the program you want. Because EZ-Menu isn't memory-resident, all your applications will have the maximum amount of RAM available to them. It leaves a set of commands in the DOS environment, however—just like a batch file.

I thought I'd have to manually set up all my menus, but the MAKEMENU installation program scans your hard disk—looking for typical applications such as word processors, spreadsheets, communications programs, graphics programs, games, and so on—and then automatically creates a

menu item for each application. Note, however, that it doesn't "recognize" every type of application you may have on your system. EZ-Menu will also create sub-menus if, for example, you have more than one word-processing program or some other group of similar applications. Each menu includes a list of standard and convenient DOS commands, such as those for formatting floppies, defragmenting a hard disk, and running various DOS utilities.

With EZ-Menu's simple menu-creation and editing tool, you can create, add, delete, move, or modify any menu item. (See the second

screen shot, opposite.) You can also display the day, date and time, screen messages, and help notes, and alter screen and menu colors.

If that's all EZ-Menu did, it would be enough. But there's more. I especially liked the four levels of password security, even with its weaknesses. You can restrict users to a particular program or group of programs, prevent modifications to your menus, and restrict access to the DOS command line. There's also multiuser log-in, with a separate account and security for each user. You can even track computer access, to see who's using which programs.

Unfortunately, some security features would stop only an inexperienced user; anyone with a DOS or Windows boot disk could circumvent the menu program. Once you exit a Windows program, for example, you have access to the entire system. The menu always lists all items starting with the letter A, even if you go to a sub-menu or a menu's second page. Note, too, that on-line



Create a customized, one-click menu for running all your favorite programs. You can also set up menu items to run particular applications automatically at preset times.

```

EZ-Menu 6.0 by Mike Perry/ECS (c) 1983-1994 Progressive Computer Services, Inc.
***** EDIT MODE *****

A - Menu entry description:
  Door:
B - Entry type (P=Program, B=Batch file, S=Submenu):
  PROGRAM
C - Subdirectory where application is located:
  \GAMES\DOOMSH
D - Command/filename to execute menu selection:
  doom.exe
E - Password: * NO PASSWORD PROTECTION *
F - Menu option on drive: C:
G - Pause before returning: 10
H - Prompt for parameters: NO
I - Reset re-execution: NO
J - Return to main menu: NO
K - Prompt for log comment: NO

N - No Time Execution Specified.

Z - Edit Pop-Up Help      <SPACE> = Save & Exit    <ESC> = Abort Editing
Press letter of desired option to change, <SPACE> to Save; <ESC> to abort
=> Abandon All Hope Ye Who Enter Here! <=

```

A handy editing tool, complete with prompts and a menu-style interface, makes it easy to modify, delete, or move any menu item.

help is minimal, but mainly because too much could defeat user and program security options.

An especially handy feature, however, is Timed-

Automatic Execution, which lets you set up any menu item to automatically run an application at a preset time, day, or date. That means you can do automatic hard-

drive backups, antivirus scans, and drive defragmentation in the middle of the night, all while you're sound asleep.

EZ-Menu is also available in shareware format, and can be found on many popular BBSes and information services. The shareware edition of the program, however, lacks some of the commercial version's more advanced features.

Stanley J. Wszola is a freelance writer and systems-support analyst. Contact him on CompuServe at 71011, 1726.

EZ-Menu 6.0, \$69.95
 Progressive Computer Services
 P.O. Box 7638
 Metairie, LA 70010-7638
 504-831-9717
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 (credit-card orders)
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Continued on page 73

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THE DIG

Lost in Space

Who else but Steven Spielberg could come up with such a fun way to find your way home from a strange planet?

by Steven F. Smith

For strategy and intrigue, LucasArts' latest venture into computing fun—an epic sci-fi adventure game called **The Dig**—will be an encounter of the finest kind for many PC enthusiasts. This DOS and Windows 95 CD-ROM features an unusually detailed and complex story line, plus all the special effects you'd expect from Hollywood's *Star Wars* production family: speaker-to-speaker stereo sound, a space shuttle roaring across the screen, and warping star fields that'll have you grabbing onto your seat.

Award-winning film director Steven Spielberg, the mastermind behind so many entertaining space adventures for the big screen, has provided the vision for *The Dig*. In fact, Spielberg has sought to design a computer game that combines top-rated PC multimedia with the otherworldly feel of *Forbidden Planet* and the drama of *The Treasure of the Sierra Madre*.

Yet *The Dig* remains a multimedia diamond in the rough. Occasionally, its spectacular sound and visuals get lost in the overall sensation that you're experiencing a low-budget *Myst* or

a typical high-tech Saturday-morning kids' cartoon. You get a thinner version of *Myst*'s haunting, ethereal panorama and soundtrack, which serve as a backdrop to somewhat stiff character interaction (but otherwise clever dialogue). You might wonder why LucasArts wasted such a creative effort on inadequate 8-bit sound, especially when most high-powered, state-of-the-multimedia-art Windows 95 computers come with 16-bit sound cards preinstalled.

But if you can live with the disappointing sound, everything else about *The Dig* will have your head spinning with suspense. It's a wonderfully scripted saga about a mission that mysteriously backfires. A crew of shuttle astronauts are sent to stabilize an ominous-looking asteroid before it collides with Earth. Instead, the asteroid transforms into a prism-like alien spaceship, and the heroes are transported at warp speed to a strange, dangerous, uninhabited planet—or is it?

It's drama within a drama, as you try to gather home-again clues through the expedition leader, Commander Boston Low. But

Low must also deal with personality conflicts among the crew: primarily power struggles with geologist Ludger Brink. And then there's astronaut/journalist Maggie Robbins, who at first seems miscast for a 21st-century saga. Initially, she seldom speaks like a sharp-minded Lois Lane type, instead coming across like an "Are you all right, dear?" June Lockhart. But don't be fooled: As the game unfolds, she could become a brilliant part of your strategy to get home.

To find your way back, you'll have to compile clues and tools, such as a shovel, a magnifying glass, and an ancient tusk. The object is to

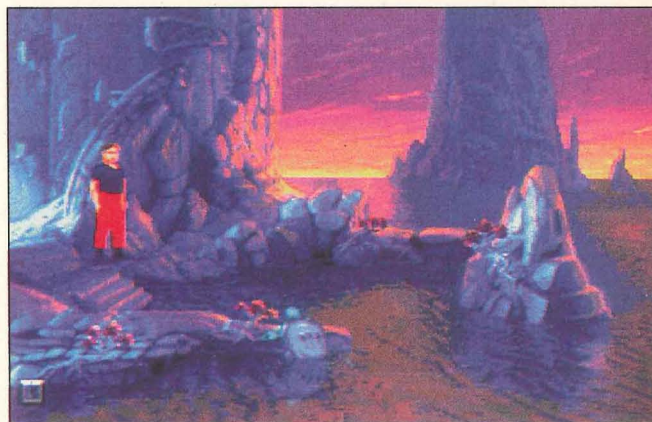
explore and experiment to learn about the species that formerly inhabited this mysterious planet. The ghost of that life form wants something valuable from the lost explorers—and it's a choice so difficult it could mean the difference between getting home safely and remaining forever lost in space.

Meanwhile, back to Earth. The good news is that if you haven't upgraded to Win95 yet, you can still have fun with *The Dig* as long as you have DOS 5 or later, and a 486 PC with 8MB of RAM. A double-speed CD-ROM drive, 8-bit sound card, and mouse are also minimum requirements. Just remember to play for the extraordinary fun of the game, not for the multimedia experience.

Steven F. Smith is a senior editor at DOS World.

The Dig, \$49.95

LucasArts Entertainment
P.O. Box 10307
San Rafael, CA 94912
415-721-3300



A haunted planet, a mission gone awry . . . Spine-tingling suspense, gorgeous graphics, and clever dialogue make *The Dig* an exciting interactive experience.

DOS WORLD INDEX

D*OS World* published its first article index in issue #8; the second index was published in issue #15; the third index appeared in issue #20. This index covers issues #18 through #24 (Nov. 1994 – Nov. 1995) and includes special issue #5, “Running DOS and Windows: 2nd Edition” (Feb. 1995).

AUTHOR	ARTICLE TITLE	ISSUE	PAGE	DESCRIPTION
DOS AND WINDOWS EXPLAINED				
Bond	DOS Communications in Windows	sp5	68	Let Windows help you get more power from your favorite DOS communications package.
Brothers	Doing DOS Under Windows	sp5	24	Learning to run DOS sessions under Windows may test your patience, but the rewards are worth it.
Brothers	Without You I'm Nothing	#21	28	CMOS holds your PC's most important data. Follow these pointers to protect it from disaster.
Editors	Reinvigorating DOS with Windows	sp5	4	Real productivity gains—if you beware of unrealistic expectations.
Gookin	Test Your DOS IQ	#18	53	Think you know DOS? Match wits with the author of <i>DOS for Dummies</i> .
Gookin	The Seven Deadly DOS Commands	#18	17	It takes only one deadly DOS command to ruin your day. Avoid these villains so you won't have to call 911.
Gookin	Live Comfortably with DOS in Windows	sp5	49	Windows may play favorites, but running DOS programs can be easy, fun, and beneficial.
Gookin	My AUTOEXEC, My Self	#20	21	Personalize your start-up to reflect your style, creativity, and DOS know-how.
Hummel	DOS...Chicago Style	sp5	20	A test run of the newest version of Windows reveals good news for DOS users.
Johnson	Become a DOS Switch Hitter	#20	28	Make DOS do what you want, right off the bat. It's all in how you handle those command switches.
Johnson	PATHs That Perform	#24	32	These tips pave the way to a more powerful DOS command.
Johnson	New Wine In Old Bottles	#24	44	So you can't run the newest software on your 286, but you can still get extra life by upgrading your DOS version.
Livingston	Secrets of a Happy Marriage	sp5	36	Strengthen Windows and DOS' relationship by optimizing memory and choosing the right PIF settings.
Maloney	A Windows Survival Kit	sp5	56	These handy Windows workarounds will help you sidestep the roadblocks to easy DOS access.
Maloney	Inside "DOS 7"	#24	26	Plagued with new quirks, the newest version of DOS—found in Windows 95—is hardly an upgrade at all.
Miastkowski	DOS & Windows: A Powerful Team	sp5	6	Take the plunge! Once you get in, you'll discover that Windows can coax more mileage from your DOS apps.
Nelson	A Tourist's Guide to Windows	sp5	12	Demystify some of Windows' enigmatic language. Here's how to find your way around and get things done.
Nelson	Not Just Window Dressing	sp5	43	Tap into a collection of indispensable programs in your Accessories group.
Nelson	Running DOS & Windows: Q&A	sp5	71	Answers to 10 questions Windows users ask most often.
Nimersheim	Streamlining Your Workflow	#19	27	Who needs Windows? From task swapping to creating program groups, it's the DOS Shell to the rescue.

AUTHOR	ARTICLE TITLE	ISSUE	PAGE	DESCRIPTION
FILE / DISK MANAGEMENT				
Brothers	Sharing Resources with InterLink	#19	23	A true network it's not, but InterLink is ideal for transferring files and keeping your laptop and desktop PCs in sync.
Hummel	Breaking the Speed Limit	#19	44	Hard-disk woes? Don't upgrade your entire system; identify the bottleneck and break it with a pinpoint solution.
Hummel	Exploring Inner Space	#22	27	Don't gamble with your data; two Debug utilities let you check free space on the target disk before you make a move.
Johnson	Put an End to Copy Confusion	#18	24	To COPY, REPLACE, or MOVE? That is the question. Learn the strengths of each of these commands.
Johnson	Caching In on Performance	#21	51	Check out this package of disk-caching tips for Super PC-Kwik and SmartDrive. In no time, your drive will seem faster.
Johnson	Managing the Maze	#21	24	It doesn't take long for your hard drive to become disorganized. Once you clean up your root directory, it's smooth sailing.
Johnson	A Backup Blueprint	#22	23	Backup is a pain, but the alternative is worse. DOS tools help you play it safe while keeping the tedium to a medium.
Johnson	The Case of the Sick PC	#23	23	Faced with cross-linked files? Don't pull out your hair—most of the solutions are right inside your PC.
Lowe	A SMARTMON for Cool Runnings	#19	69	Keep track of SmartDrive's disk-caching performance with this Windows program.
Lowe	Streamlining Directories	sp5	33	Save precious hard-disk space by deleting unnecessary files.
Roberts	Rev Up Your Hard Disk With Defrag	#23	26	Fragmented files can slow you down, but this DOS utility will get you back on track fast.

BATCH FILES

Brothers	Batch Files, Basically	#18	35	Use the best of QBasic and DOS to design a problem-solving program.
Brothers	A Batch-File Breakthrough	#19	36	Write batch files that heretofore haven't been possible without a higher-level language.
Brothers	A Batch-File Breakthrough: Part II	#20	36	These batch files can handle all sorts of file-management chores.
Brothers	PROMPT Delivery: Capturing Data in DOS	#21	37	Grab info with the PROMPT command so your batch files can perform tasks on demand.
Brothers	Applied Math: Simple as 1,2,3	#22	30	Who says batch files can't do arithmetic? This calculator program can add and subtract numbers of up to four digits.
Brothers	Mastering Your Batch-File Tools	#23	33	You can do lots of stretching—and add power in the process—to DOS's batch-file language before it breaks.
Brothers	Searching the Depths of Your Drive: Part 1	#24	39	With a little ingenuity, you can make DOS's batch language do almost anything a "real" language can do.
Hummel	A Batch of Windows	#18	29	Add pizzazz to your displays by dressing up an otherwise-routine batch file with windows, borders, and colors.
Hummel	Working with Drives	#21	32	Get foolproof program installation with a simple-yet-elegant batch file.
Hummel	Show Me the Way to Go Home	#23	30	These batch programs not only let you perform multiple tasks, they know where your home directory and drive are.
Lowe	ANSI Magic: A Trick of the Eye	#18	40	Create eye-catching menus without an endless maze of unwanted options.
Maloney	Three Ways to Beat the Batch	#19	39	Get around the limitations of DOS's batch-file language to create electronic "bookmarks" for subdirectories.
Maloney	Symbolic Victory: Part I	#22	35	Here are six of the 14 symbols you need to master before entering the world of batch-file programming.
Maloney	Symbolic Victory: Part 2	#23	37	Brushing up on DOS's suite of symbols is one way to boost your batch-file IQ.

PROGRAMS AND PROGRAMMING

Ennen	Your Attention, Please	#21	57	QBasic makes it simple to brighten your screens with eye-catching wallpaper.
Fink	Have a Blast	#19	55	Go one on one with your computer in this addictive game of strategy.

DOS WORLD ARTICLE INDEX

AUTHOR	ARTICLE TITLE	ISSUE	PAGE	DESCRIPTION
Hummel	Put Your Text on the Move	#19	31	These tools will help you scroll up and down at will and design special effects for clearing the screen.
Hummel	Play Music for Me	#20	32	This utility delivers music and sound effects through your PC's speaker without special hardware or software.
Hummel	DOS's Merry Melodies	#21	46	Tune in to DOS's Debug for a versatile music utility that plays ditties through your PC's speakers.
Hummel	Exit Stage Left	#24	36	Create more effective menus with a program's exit code—if you know where to look for it.
Mull	This Is Madness	#22	53	MADNESS gives you fun and frustration in one zany QBasic puzzle.
Mull and Sweet	Special-Effects Programming	#18	54	Four QBasic subroutines make it easy to type in programs and have fun doing it.
O'Connor	Opening Night: Playing with Size and Color	#20	57	This QBasic show-stopper makes it easy to create thousands of special effects. Your intros will never be the same.

USING PC SOFTWARE

Bond	Choosing a Windows Comm Program	sp5	64	What you hope to do on line will determine what program you'll need to get there.
Brothers	Playing Favorites	#18	51	From a top-notch text editor to a file finder of the finest kind, these shareware gems are worth a second look.
Brothers	Best of Both Worlds	sp5	88	Five shareware utilities that give your DOS and Windows computing a boost.
Gilmore	Exploring the World Beyond "Print Screen"	#24	44	Zero in on your screen-capture needs to find just the right product to add zip to your presentations.
Gryphon	Maximizing Memory with QEMM	#18	45	It's better than DOS for finding unused areas in upper memory; our step-by-step setup lets you see for yourself.
Holtzman	A Better DOS than DOS	#19	48	Don't let its meager size fool you. 4DOS is shareware with an attitude, enhancing your power by a factor of ten or more.
Miastkowski	Warp Speed for DOS	#22	48	IBM's newest OS/2 may help you push DOS to its limits while opening up a whole new computing experience.
Nadeau	DOS and Multimedia: You Can Do It	#21	41	Don't miss out on the fun and excitement of multimedia. Here's everything you'll need to get started.
Nelson & Bailes	Strike Gold in DOS Support Programs	#20	51	The Norton Utilities and PC Tools Pro can serve you well in emergencies, plus boost your productivity.
Rothman	An Internet Primer	#20	41	The information highway has much to offer DOS users—once you know how it works, and what you'll need to get on.

TROUBLESHOOTING

Brothers	When Bad Things Happen to Good PCs	#23	44	Your system needs only three kinds of rescue programs to get you out of just about any computing disaster.
Chase	12 Steps to Painless Customer Support	#22	44	Calling for help doesn't have to be aggravating. Maximize your success while minimizing the wait for the right answer.
Nelson	Disaster Averted	#19	10	Our time-tested tips will help you prevent a computing mishap from becoming a nightmare.

CHOOSING EQUIPMENT

Hummel	How to Choose a Tape Drive	#20	48	Get all the answers before investing in that all-important data-backup system.
Hummel	How to Get What You Really Want	#22	40	Cut through the maze of choices by knowing which components you need and which you can live without.
Hummel	Burning Rubber or Blowing Smoke?	#23	48	A 28.8kbps modem could make a big difference in your on-line travels. But are we talking now or someday?

AUTHOR	ARTICLE TITLE	ISSUE	PAGE	DESCRIPTION
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SHAREWARE EXCHANGE

Brothers	Keep it Simple	#18	96	Save time with two file finders and a memory-conscious menuing system.
Brothers	Short and Sweet	#19	88	They're short and sweet, and fit on even the most crowded hard drive.
Brothers	Shattering Stereotypes	#20	18	Finally—a terminal package with stunning graphics.
Brothers	Quiet Performers with a Big Finish	#21	20	Get the job done right—no frills attached.
Brothers	Pennies from Heaven	#22	20	A great little money maker, all for just eight George Washingtons.
Brothers	Shining Stars on the Net	#23	21	Something small, something large; something simple, something complex. Find it all on the World Wide Web.
Brothers	Let's Have Some Serious Fun	#24	22	"Serious Fun" with a well-balanced shareware diet.

WINDOWS SEAT

Brothers	Give Me My Space	#23	57	If you have DOS 6.x, a simple batch file lets you choose multiple customized desktops in Windows 95.
Hummel	Mining for DOS in Win95	#24	57	Microsoft touts Windows 95 as the end of DOS as we know it. Fortunately, that's far from the truth.
Lowe	Sorting It All Out	#19	69	Keep track of SmartDrive's disk-caching performance with this little-known program.
Maloney	Associating with Windows	#18	70	Associate lets you create launchable icons for data files.
Maloney	Fun with Windows' File/Run	#20	72	File/Run may be a sorry excuse for a command line, but you can still get it to do something constructive.
Roberts	Automatic Windows	#21	65	Don't delete that Recorder macro! It can automate Windows tasks and save tedious keystrokes.
Roberts	The Best of Both Worlds	#22	59	Hooked on old DOS programs? Make sure there's plenty of conventional memory available before Windows boots up.

DOS WATCH REVIEWS

Angelo	Quattro Pro 5.5 & WordPerfect 6.1	#24	74	spreadsheet/word processor: Novell Inc., 1555 North Technology Way, Orem, UT 84057, 800-451-5151
Bailes	Multimedia Stacker 3.1	#21	42	compression software: Stac Electronics, 12636 High Bluff Drive, San Diego, CA 92130, 619-929-3900
Gryphon	Buttons for DOS 5.0	#21	68	graphical menu system: Triad Software, P.O. Box 1299, Sequim, WA 98382, 206-683-3202
Hummel	PC DOS 7	#22	74	operating system: IBM, 1133 Westchester Ave., White Plains, N.Y. 10604, 800-426-2255
Johnson	QEMM 7.5	#20	84	memory-management software: Quarterdeck Office Systems, 150 Pico Blvd., Santa Monica, CA 90405, 310-392-9851
Wszola	Hot Fax	#22	44	data/fax communications package: Smith Micro Software, 51 Columbia, Aliso Viejo, CA 92656, 800-964-7674
Wszola	NeoPaint Presentation Pack	#22	76	presentation software: NeoSoft, 354 N.E. Greenwood Ave., Suite 108, Bend, OR 97701-4631, 503-389-5489
Wszola	FastLynx Lite for DOS	#23	74	file-transfer software: Rupp Technology, 3228 E. Indian School Rd., Phoenix, AZ 85018, 800-844-7775
Zeichick	FrontRunner 1.3	#20	83	program launcher for Windows: Phar Lap Software, 60 Aberdeen Ave., Cambridge, MA 02138, 617-661-1510
Zeichick	Take Command	#23	79	command-line utility for Windows: JP Software, P.O. Box 1470, East Arlington, MA 02174, 617-646-3975
Zeichick	Under a Killing Moon	#24	72	adventure/mystery game: Access Software, 4910 W. Amelia Earhart Drive, Salt Lake City, UT 84116, 800-800-4880

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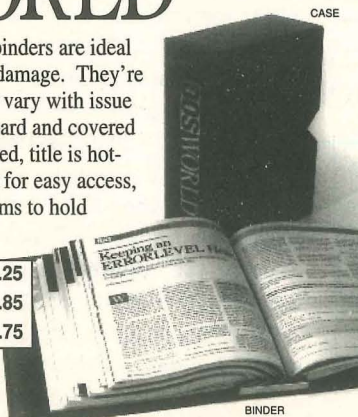
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SATISFACTION GUARANTEED

DOS Watch

News and reviews of DOS enhancements, upgrades, and products

Edited by Steven F. Smith

DOS Lives on CD-ROM

DOS is still the favored operating system for CD-ROM development, according to the latest edition of the *CD-ROM Pocket Guide* directory

(published by Pemberton Press and the Optical Publishing Association). Of the 9200 CD-ROM titles it lists, 64.5 percent are DOS-based, while Windows titles make up fewer than 40 percent of the listings.

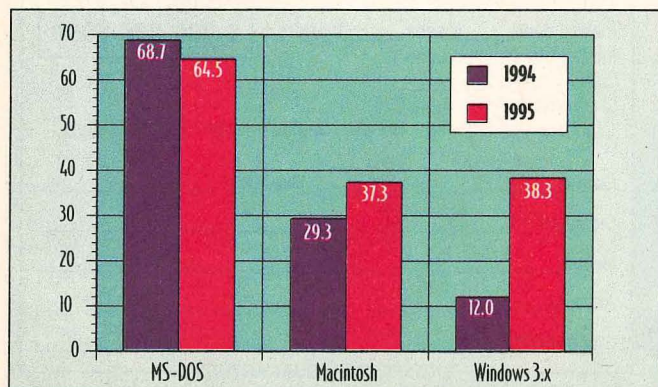
What's more, the DOS figure is down only 4.2 percent from the percentage quoted in last year's edition of the *Pocket Guide*. Windows titles, meanwhile, increased three-fold during the course of the year. (See the accompanying bar graph, below.)

Most of the DOS titles are games, educational programs, and database managers. Game developers continue to use DOS to avoid resource-hungry Windows and to get the best performance from graphics-based titles. And because many public and private schools still rely on older systems that don't run Windows, educational publishers can't afford to abandon DOS.

Meanwhile, database and reference works on DOS CD-ROM are still text-based, and, according to Richard A. Bowers, editor of the *Pocket Guide*, many businesses and libraries that use those titles do so with less-expensive DOS machines.

Even the advent of Windows 95 did little to dampen DOS's popularity among CD-ROM publishers. "Given the current mix of CD-ROM title platform targets," Bowers says, "Windows 95 can't be seen as anything but a major platform that must be installed and configured by the customer, adding another barrier to access."

—Michael Nadeau



OH Great, Another Windows?

Get ready for **Windows 96**. Just weeks after shipping the much-hyped, much-delayed Windows 95 (code-named Chicago), Microsoft Corporation announced plans for beta-testing of "Nashville," the code name for the company's Windows 96.

Although it's not an entirely new operating system, consumers are bound to be confused by the newest Windows: Is it better than Win95? Will it make Win95 obsolete?

Few details were known as *DOS World* went to press in October, but, in essence, Win96 is expected to be a glorified upgrade to Win95, including bug fixes plus new add-ons such as Microsoft's NetWare 4.1 requester, DirectX multimedia extensions, and infrared communications.

Stay tuned. Beta-testing is expected to begin early in 1996, with a ready-for-market product all set by the end of the year.

Number One Virus on the Loose

WinWord.Concept, believed to be the first-ever computer virus written in a macro language—more specifically, Windows' Word-Basic—is infecting Microsoft

Word 6.0's documents (DOC files) and NORMAL.DOT template. The virus, which has been reported in several countries, is also the first to plague actual documents rather than executable code.

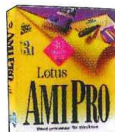
Computer "viruses," or *malware*, are simply a set of computer instructions that can replicate themselves or destroy or alter PC data. Viruses have been plentiful and sometimes painful over the years. In fact, annoying and destructive viruses have been around since the 1940s, when three programmers at Bell Labs decided to have some behind-the-scenes fun with what was to become known as "Core Wars"—a sort of computer game designed to destroy elements of the other guy's programs.

Microsoft is calling WinWord.Concept nothing more than a "prank macro . . . [that] changes Word's Save As command . . . [It] does not cause data loss or other serious system



Continued on page 68

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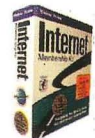
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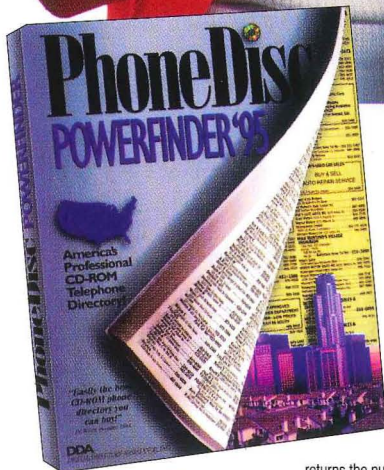
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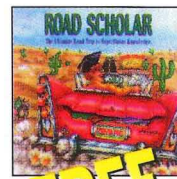


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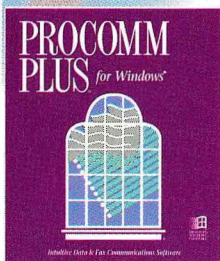
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